Disclaimer

This information is provided as an "At Your Own Risk" procedure. I can not absolutely assure that it is safe for any or all equipment, with any make of materials, or under any or all environmental or working conditions. If you perform this procedure on a product belonging to you or another person, you do so at your own risk and liability. Also you are responsible for taking any safety precautions that may be necessary to protect yourself and the equipment you may be working on, or which may subsequently be affected by this procedure. You are also responsible for any breach of law or contract which would occur by your decision to undertake this procedure.

This information and procedure are not sponsored, endorsed, authorized, or condoned by; and are probably criticized or condemned by any and all of the following: Dell; any of their affiliates; any other manufacturer of laptops, electronic devices or equipment, screwdrivers, or paperclips.

Also; I can not be held liable for any ill effects brought about from natural responses of humor resulting from reading of this site, or its content, regardless of the form of humorous reaction. This shall include but not be limited to: laughing, chuckling, giggling, or snorteling.

Helpful Links:

http://support.dell.com/systemdocumentation/index.aspx?category=12,86

http://support.dell.com/systemdocumentation/index.aspx?category=12,87

http://digitaltv4free.tripod.com/dell/latitudeD35B.zip

http://digitaltv4free.tripod.com/dell/service_tag.zip

http://digitaltv4free.tripod.com/dell/bootcd.rar

http://homepage.ntlworld.com/judslat/paragon/software.html

There are a lot of people who have a dell or similar laptop that they are not able to use because of a special password chip that can't be cleared by resetting the CMOS.

Dell will not give any help to these people without verifying that they are the original and registered owners of these laptops. Their justification is that it is part of their security / anti-theft program, and keeps people from stealing their laptops or accessing their data.

There are however, several reasons that this is an extremely unrealistic approach to the matter of laptop theft.

- ❖ **Many legitimate possessors of a laptop may:**
  - ➢ Be original owners who neglected to register with Dell.
  - ➢ Have lost all the paperwork pertaining to their ownership
  - ➢ Have bought it second hand from an original owner.
  - ➢ Received it from their employer, and changed jobs.
  - ➢ Bought it through a commercial or government liquidation sale.
  - ➢ Bought it off of eBay or another auction site.
    - ▪ Either legitimate or stolen, this would not be the fault of the possessor.
  - ➢ Received it as a gift from a parent, spouse, friend, etc...; whom is dead, estranged, unreachable, etc...
- ❖ **This password system does not prevent theft because:**
  - ➢ When stealing a laptop, either off a park bench, while slipping into an office, breaking into a home or car; a thief will not pull out their handy 'list of laptop models that are protected by an irremovable password", and leave the notebook there.

- ➤ Thieves steal according to opportunity, and even if they are aware that a laptop might be protected by a password, they will likely steal it anyway. If they can't break the password, they can just throw it away, as it did not cost them anything, and has no investment value to them.
- ❖ **It also does not increase the likelihood of catching thieves, or the return of a stolen laptop because:**
  - ➤ Stolen laptops are often stolen along with other belongings which could likely include the original owner's identity and/or paperwork regarding the laptop.
  - ➤ A thief who finds that the laptop they have stolen is protected by a password will not feel remorseful at this barrier, and seek out the legitimate owner so that they can return it.
  - ➤ If a thief should call Dell and be unable to provide ownership information and the technician logs their caller ID, and reports it to the authorities:
    - ▪ This is hardly grounds for a search warrant.
    - ▪ By the time any action might be taken by police; the thief will likely have given up on the laptop and gotten rid of it, or passed it along to someone else. There will be no evidence, and no returned laptop.
  - ➤ If authorities confiscate a laptop which they believe is stolen:
    - ▪ They may or may not be aware of their ability to find the owner through Dell.
    - ▪ The owner may never have registered.
    - ▪ They may not initially be believed by Dell tech support and decide not to press the matter.
- ❖ **It also does not prevent the data on the laptop from being accessed because:**
  - ➤ Anyone who has the laptop in their possession can remove the hard drive in about 10 seconds, put it in another laptop or computer (or copy it to another hard drive) and access it.
  - ➤ These laptops, to my best knowledge, come equipped with the ability to enable a Hard Drive password. **This is what hard drive passwords are for!** If the hard drive password is enabled, regardless of its circumventability, a second password will not make the data super secure. If one password can be thwarted, then 2 can be as well.

So we are left with the stark realization that Dell's password security scheme is nothing more than a selling point. Something that will cause someone to buy one of their laptops, instead of another brand, because of a perceived safeguard - which is in reality, nothing more than ineffectual hype.

The purpose of this site is to show you how, if need arises, you can negotiate past this purportedly intricate and nearly foolproof security measure using nothing more than the devices in this picture:

1. **The laptop**
2. **A small screwdriver**
3. **A paperclip**

The following pages will show you how this can be done; in a step by step breakdown, with photographs of the actual process. At no charge to you.

<u>**Introduction**</u>

An explanation of what's going on with the laptop.

This is the prepatory section where I explain some things about the chip, CMOS, asset and service tags, and passwords; so that you will have a good grasp of the big picture.
Hopefully it will also clear up any thing you have gotten a vague idea about on another website.

All computers have special chips inside them that store information about the computer.

Some of them are manufactured with permanent information that can not be changed (and, as a rule, all have exactly the same information on them; thus not for passwords.) These contain information about the computer model or are part of its functional circuitry.

Another type of chip (the kind we are interested in) is manufactured with a blank information area that can be programmed or filled with information. These chips are commonly used to store settings and passwords; and come in 2 basic sorts: VOLATILE and NON-VOLATILE.

VOLATILE chips use a source of electricity to help them keep their information, such as a battery. They are less expensive and are used to store computer settings, and also passwords on *most* computers. If one of these chips has a password on it, the battery can be removed and after a time (between 2 seconds to 30 minutes, depending on the chip) the password will be erased.

NON-VOLATILE chips do not need electricity to keep their information, but are more expensive. If there is a password on one of these chips, it can be removed from power for years and still have the password on it. (However this does not mean that it is permanent.) Remember that the information on Non-Volatile chips can be filled with information. This information can also be changed or erased.

If you have read this far you probably own a Dell or similar laptop with a password that is obviously stored in a Non-Volatile chip, or are an employee of a company that makes one. These laptops have most of their setting information stored in Volatile (inexpensive) chips, and their passwords are stored on a tiny Non-Volatile (more expensive) chip.

The chip that Dell uses is called a 24C02 chip.
This is the Chip Type number used to refer to the chip's design in the electronics industry.

The 24C02 is a small, rather common surface mount[*] dip[*] chip with 8 leads (or legs), which costs about $5. It measures 4.5 mm long x 3.5 mm wide x 2 mm tall, and stores 256 Bytes (or one quarter of a Kilobyte) of information. It is commonly used in modems, DIMM Memory, and other electronic devices; and in a different shape it is used in many wallet sized "smart cards." * SURFACE MOUNT means that the chip is soldered onto the surface of the printed circuit, instead of having pins sticking through the board. This is the most difficult type of circuitry to solder by hand.
* DIP means 'Dual Inline Package'. This means that the chip has 2 rows of leads (or legs) in straight lines running down its sides.

That's the chip we will be dealing with, if you would like to know more about the chip, click here, or read the "*Some unnecessary information about the chip.*" section later on.

The laptop that was used in this demonstration is a Model 630 type PPX. Other laptops may be different from the one shown in the full breakdown demonstration photos.

If a certain laptop does not correspond to any of these diagrams, more information might be found on the web, or, anyone not reading for informational purposes only - could decide to simply "Wing it."

Also, the chip containing the password may be in a different location on some motherboards, but it should be able to be found by reading the numbers on the top of the chip, although a magnifying glass might be necessary. Take out the hdd and use a ac adapter!

Model / Series	Typ	Chip	Clears	Comments
Latitude	XP	?	not tested	no Info
Latitude	XPi	Yes	Yes	The EEPROM chip 24c02 is on the backside of the motherboard behind the PCMCIA slots. Short circuit Pin 3 and 6 wile booting
Latitude	CP	Yes	not tested	no Info
Latitude	CPi	Yes	Yes	You have to solder two smal wires
Latitude	CPiA	Yes	Yes	The Chip is on the top side of motherboard, under MMC2 processor module. You have to solder two smal wires
Latitude	CPx	Yes	Yes	Picture included.
Latitude	CPxJ	Yes	Yes	The Chip is on the top side of motherboard, under MMC2 processor module.
Latitude	CS	?	not tested	the 24C02 chip is located between Neomagic chip and ram slot
Latitude	CSx	Yes	Yes	the 24C02 chip is located between Neomagic chip and ram slot
Latitude	c400	Yes	Yes	Picture included.
Latitude	c500	Yes	Yes	The Chip is on the bottom side of motherboard, under the PCMCIA card slots.
Latitude	c510	Yes	Yes	The Chip is on the bottom side of motherboard, under the PCMCIA card slots.
Latitude	c600	Yes	Yes	The Chip is on the bottom side of motherboard, under the PCMCIA card slots.

Latitude	c610	Yes	Yes	Picture included.
Latitude	c640	Yes	Yes	The Chip is on the bottom of the motherboard just to the left of DIMM 1.
Latitude	c800	Yes	not tested	no Info
Latitude	c810 c840	Yes	Yes	Picture included.
Latitude	L400	Yes	Yes	remove CMOS Battery for 5 minutes.
Latitude	D400	Yes	Yes	Picture included.
Latitude	D410	Yes	Yes	Picture included.
Latitude	D500	Yes	Yes	Picture included.
Latitude	D505 D510	24c04	Yes	Picture included.
Latitude	D600	24u05	Yes	Picture included.
Latitude	D610	24u05/04	Yes	Picture included.
Latitude	D800 D810	Yes	Yes	Picture included.
Latitude	110L X1	Yes	Yes	Picture included.

Inspiron	2650	?	not tested	no Info
Inspiron	510m	Yes	Yes	24c04 eeprom is under a piece of black sheet under the pcmcia socket
Inspiron	3200	Yes	No	A program called KILLCMOS.EXE is reproted to work for this laptop.
Inspiron	3500	24c164	Yes	Picture included.
Inspiron	3800	Yes	Yes	The Chip is on the top side of motherboard, under MMC2 processor module.
Inspiron	4000	Yes	Yes	The Chip is on the bottom side of motherboard, under the PCMCIA card slots.
Inspiron	5100	Yes	Yes	Chip is on the back side of the motherboard, close to the DRAM slots.
Inspiron	7000	24C164	No	no Info
Inspiron	7500	Yes	not tested	no Info
Inspiron	8000	Yes	not tested	The chip is under the CD-ROM
Inspiron	8100 8200	Yes	Yes	Picture included.
Inspiron	8500	24c04N	Yes	Picture included.
Inspiron	8600	Yes	Yes	Picture included.

Inspiron	1100	Yes	Yes	Chip is on the bottom of the board. 24c168 is near the B ram connector
Inspiron	1200 2200	Yes	Yes	Picture included.
Inspiron	XPS Gen2 M170 9300	24C04	Yes	The chip (C24O4N) is located on the bottom of the laptop right next to the two DIMM slots

Now we are informed and ready to begin. Anyone attempting this procedure should have the implements shown in this picture, along with any others they may deem needful or useful.

They may also wish to write down the Service Tag number for later use, as it will be erased.

Laptop - Screwdriver - Paperclip

And remember, when using a screwdriver, it's "*righty - tightey, lefty - loosey.*"

**Step
One**

**Taking
it
apart**

This is the first step in the procedure; and demonstrates how the laptop is prepared for disassembly, and begin the actual disassembly process.

For this particular laptop, a size 0 Phillips™ screwdriver is recommended. Other models may require a different size or type.

*note: These photographs show the procedure being performed without any special devices or methods used to prevent or reduce the risk of either personal injury or damage to the device; such as safety goggles, electrostatic wrist bands.
It is not the purpose of this website to promote, assure, or condone this or any procedure as being safe or reasonable without the use of such devices or methods. Anyone performing this or any similar procedure is responsible for seeing to the safety needs of and resulting from such a procedure.

Furthermore, on the subject of Electrostatic Discharge (ESD,) and potential damage to computer chips or circuitry: During the past 5 years that I have worked as a computer technician, apart from volatile memory (SIMM / DIMM modules,) I have never needed to use ESD reducing devices, nor known any computer device to fail due to the effects of ESD from handling or use without ESD reducing equipment. This may, in part, be because I live in an area where the average humidity is around 70% - 80%. I understand that increased humidity tends to lower ESD effects, while lower humidity tends to increase this. Anyone deciding to perform this procedure must make their own decisions about the importance of ESD in their environment and the need for special devices or procedures.

The first thing that needs to be done, is the removable of any batteries, floppy drives, CD-ROMs, PCMCIA cards, or other removable / swappable components of the laptop. Also the power cord / adapter should be disconnected. One may, or may not want to remove the RAM, depending on personal preference.

If possible, the hard drive should be removed as well.

First the hard drive retaining screw is removed like this:

The hard drive caddy cover is pressed down (towards the bottom of the laptop,) unlocking it.

The hard drive caddy is pulled and slid outwards until it is free from the laptop assembly.

The next thing that needs to be done is the removing of the keyboard. (This particular model)

The keyboard is released from the rest of the assembly by the removal of 7 screws on the bottom of the laptop. These are indicated here by blue arrows:
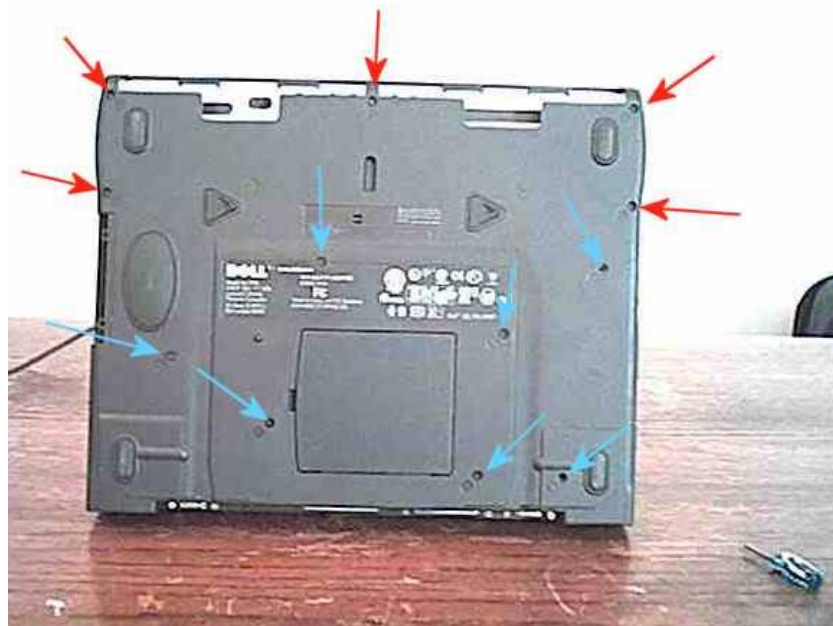
They are also indicated on the bottom of the laptop by a circle with the letter 'K' inside of it next to the location of each screw.

The keyboard is then lifted upwards and out of the main laptop assembly, except for 2 thin connection cables. The keyboard can then be lain perpendicular to its original position so that these cable's connectors can be accessed.

The larger cable pictured here can be pulled straight up, disconnecting it from the main board.

The retention clip of the smaller cable must be pressed on both sides (in the direction of the cable) gently. It should not be forced, and when open, will still be attached to the main connector, but be moved approximately 1 - 2 mm from its original position.
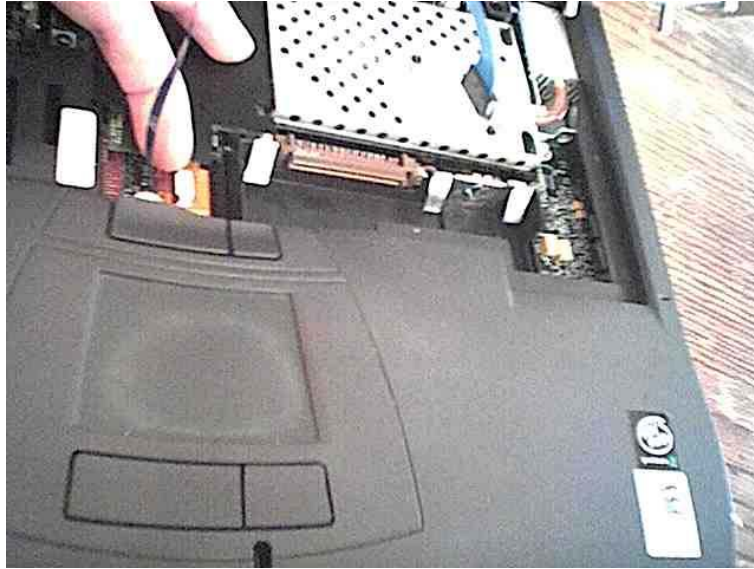
The cable can then be pulled from the connector.

Taking it apart, continued.

The rest of the disassembly process.

The next thing that needs to be done is removing of the palmrest. (This particular model)

The palmrest is released from the rest of the assembly by the removal of 5 screws on the bottom of the laptop. These are indicated here by red arrows:

They are also indicated on the bottom of the laptop by a circle with the letter 'P' inside of it next to the location of each screw.

The electronic components of the palmrest are disconnected from the main circuit by pulling this tab, which contained one of the keyboard connectors on it, straight up away from the main circuit board. Also, if the CMOS information needs to be cleared for any reason, it can be done by disconnecting this connector for only a few seconds. This is because the battery is located in the palmrest just above the right speaker (at least on this model.) And because this particular CMOS chip doesn't hold its data very long without a battery, and is located on the main board.
I personally found this to be somewhat odd.
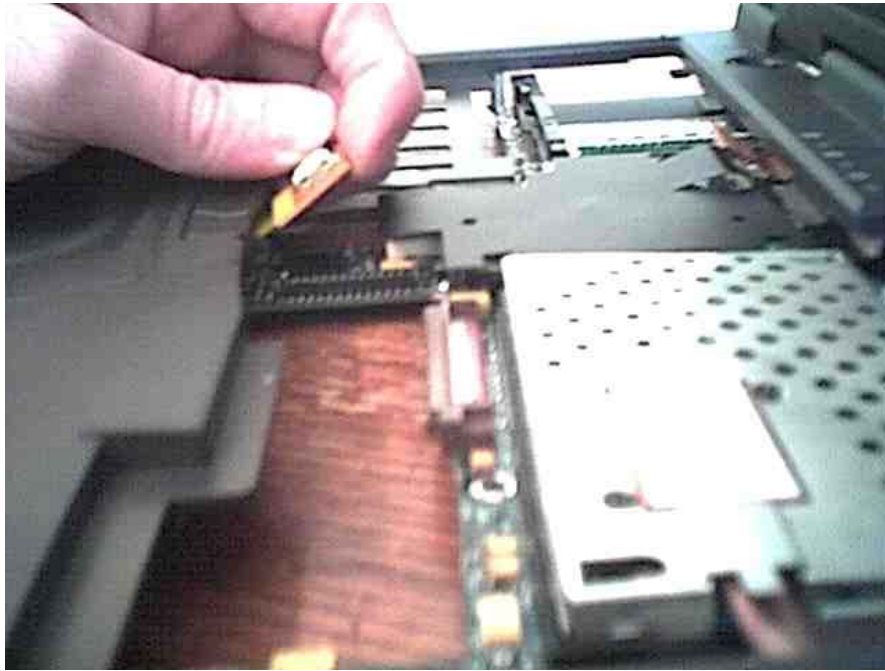
Now the latch pictured here must be released from its hold on the bottom of the case. I used a small flat screwdriver to **gently** pry it back while easing the front of the palmrest upwards. Be careful not to lift the palmrest up too much, as there are still 2 more hitches securing it to the rest of the case.

There are 2 latches, one on each side of the palmrest. They are towards the back of the palmrest, near the screen. They can be unhooked from the main assembly in the manner shown in this picture, by lifting the corner of the other section of the case up about a millimeter. After both of these are freed the palmrest can be lifted away.

The official repair manual for this laptop stated that the display must be removed before the palmrest can be taken off. But, as you can see, for anyone who is mechanically inclined enough to be able to cross a country road, this is not actually necessary. (Although this procedure does require the removal of the screen, which is next.)

The first thing that needs to be done when removing the screen is to disconnect this ribbon cable from its connector on the motherboard by pulling it upwards. This is the only electronic connection that the screen has with the rest of the notebook.
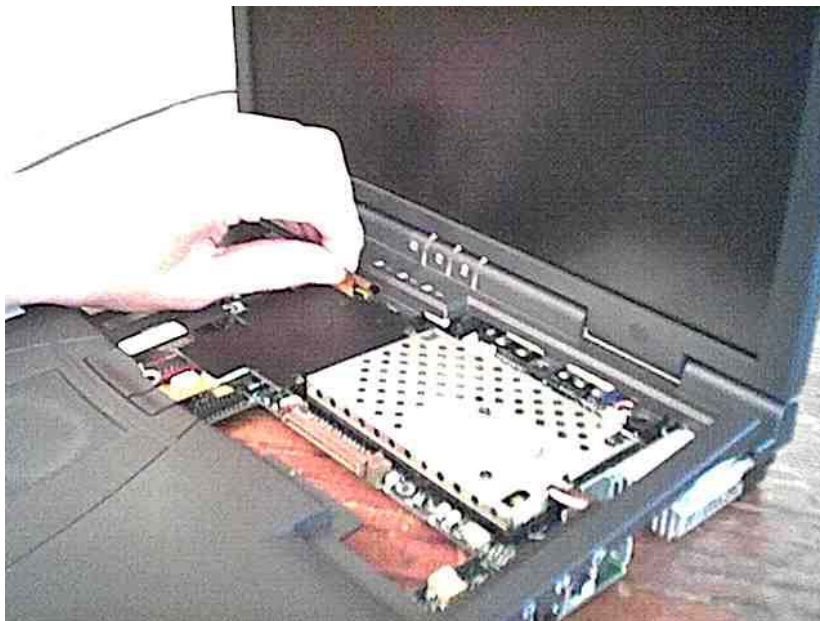
To release the screen from the main assembly, the 3 screws shown here by red arrows, and also by a circle containing the letter 'D' next to each screw.

Make sure you keep track of all screws, put them in something, and keep track of which ones go where.

After these screws are removed, the screen can be lifted straight up and away.

The motherboard is the next part to be removed. This model has 2 screws fastening the motherboard to the case as shown in the picture. There are 2 more photos following, which show close-ups of each screw to avoid any confusion. They are shown by red arrows in the photographs. But, unlike previous screws, they do not have a convenient circled letter next to them.

* For this model, these are the **only** screws that need to be removed on the motherboard! There are other screws which may look as though they need to be removed, such as the ones by the processor or fan but these should not be removed.
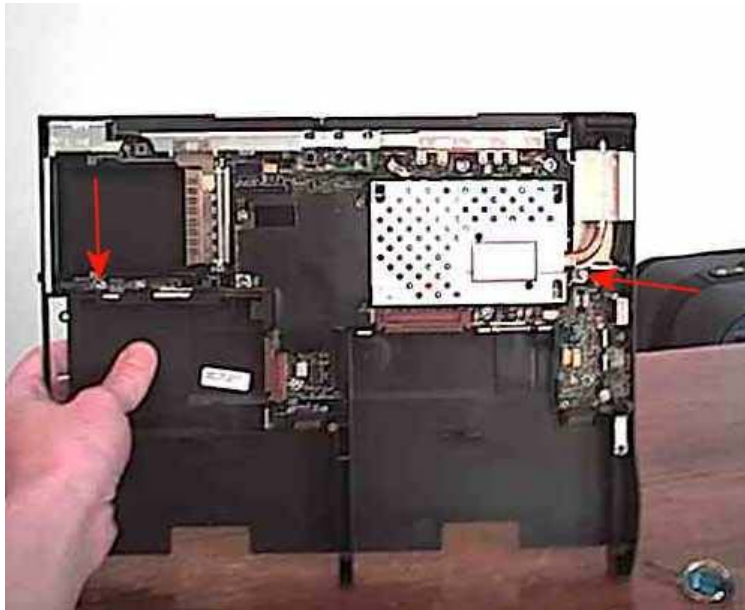
Remember to check the next 2 pictures first.

The screw on the right.
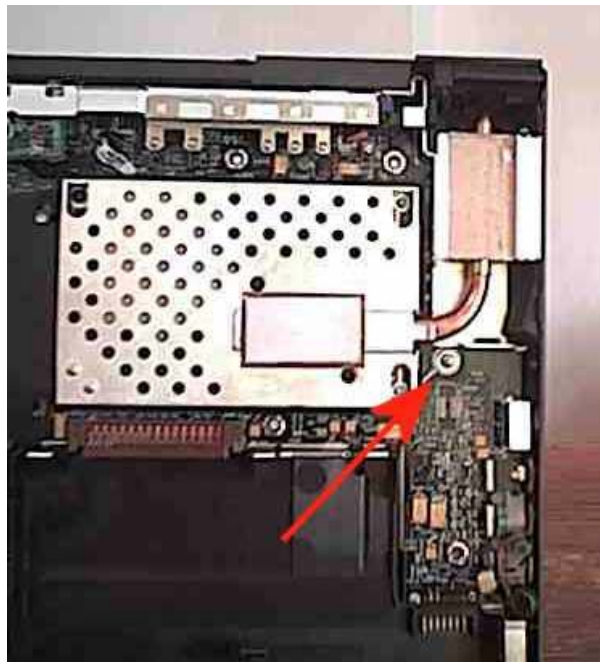
The screw on the left.
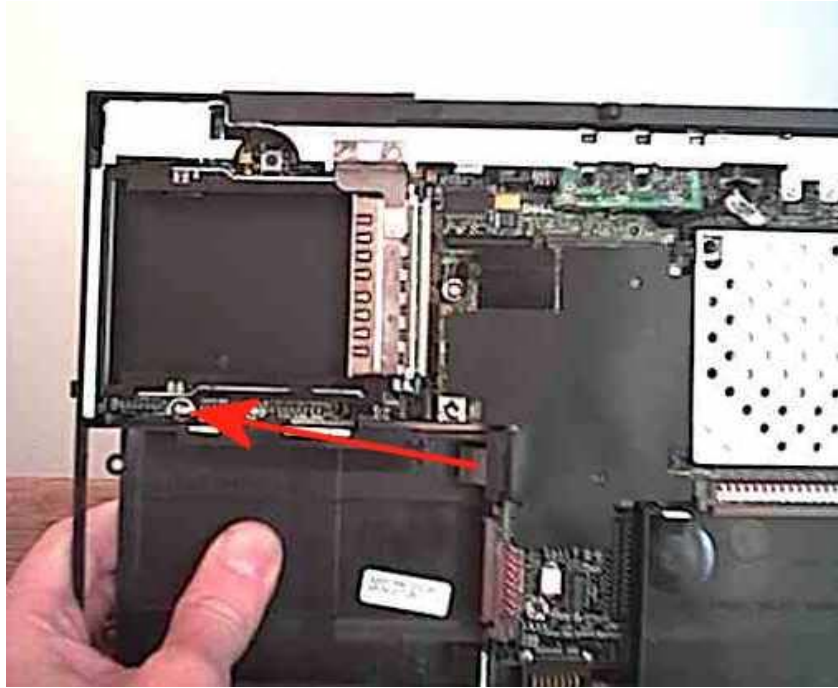
The motherboard is now released from the bottom of the case and the unit is placed in its normal position on a flat surface.

Applying a steady gentle lifting force under the middle fore section of the motherboard causes it to swing up.

And then it can be lifted straight up and away from the bottom of the unit's case.

Step Three

Reorienting things just a tad.

In order to clear the password on the chip, some of the laptop must be put back together. This is because the laptop will need to be powered on during the process. Seeing how easy it was to disassemble, this is not a difficult task.
This page shows how this part of the procedure is done, and the next page is where the real action of actually clearing the password takes place.

First the display screen must be put back on. This can easily be done by holding it in this manner and setting it into its slot.

Then it must be held in place with screws, one on each side as shown in this picture should be sufficient to hold it.
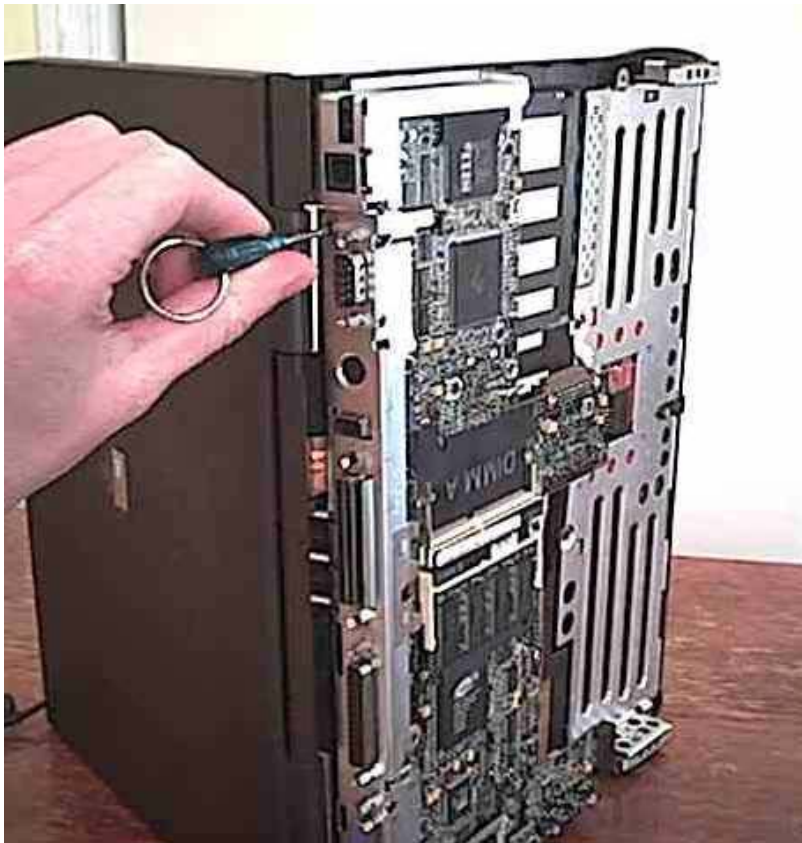
Up to this point we have something that looks like this:

Now the palmrest is be put back on.

The video connector is plugged back in.

And the palmrest connector is also plugged back in.
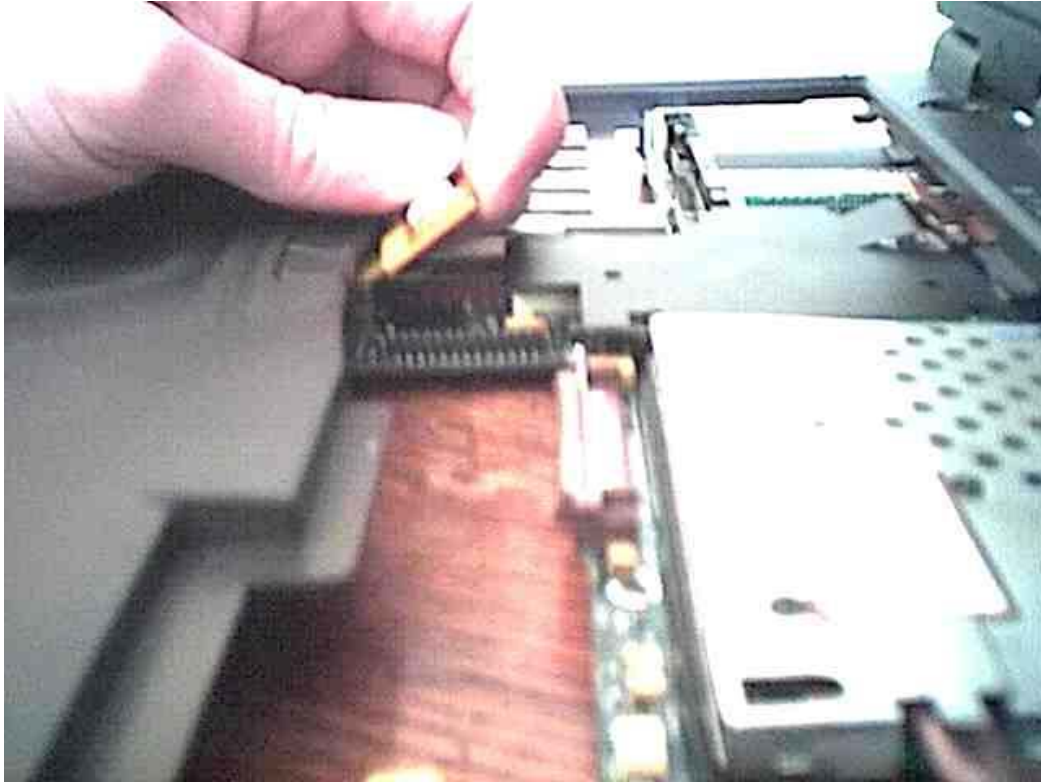
The keyboard is also reconnected.
The smaller Keyboard cable is slid back into its connector, and is held fast by closing the connector as shown is this picture. The larger cable is then gently pushed back onto its connector.

The keyboard is placed back in its seating, like this:

And finally, this one screw is used to hold the keyboard in place while the work of clearing the password is performed.

Now the laptop is ready to and there is free access to the password chip which is located on the bottom of the motherboard.

Now, you are probably thinking to yourself 'Wait a minute! I just put almost the entire laptop back together! The wascally wabbits that made this thing sure made it difficult to get to that chip!'

OK, so, you're probably not thinking the part about 'Wascally Wabbits'; but, yes, this is somewhat of a study in redundancy. The good news is that it's almost done. Nothing more has to be bought, soldered, or disassembled.

Culmination

Actually doing the deed.

This is the page that you all came here for.
Where we get down to business, and "Do it."

An enigmatic French invention, The Paperclip, will be used to master and overwhelm the power of one of the marvels of today's cutting edge technology, the microchip.

It looks like you need help clearing the password on your Dell laptop

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First the paperclip which was requisitioned at the beginning of the procedure is gotten in hand; if it has not been lost or misplaced by now, otherwise another conveniently available paperclip is used.

The paperclip is then unbent and, stripped of its paper-clipping function, is reformed into a totally new implement which looks like this:
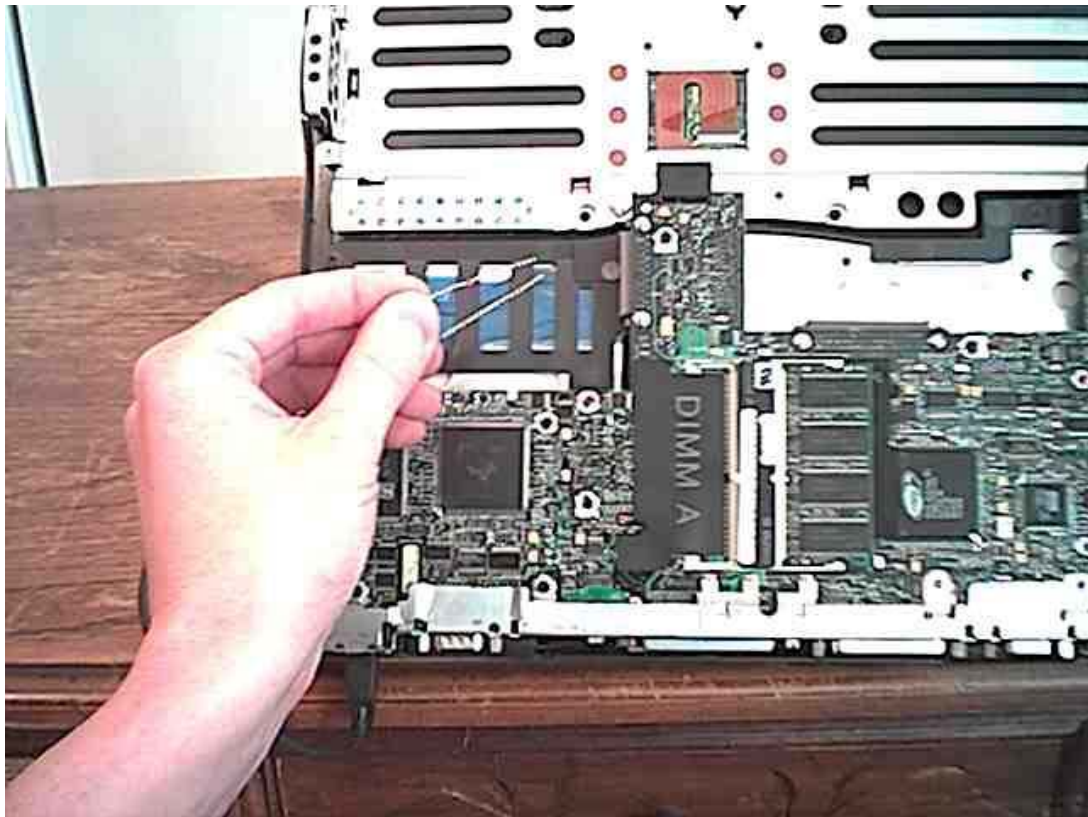
Next, the location of the actual chip is sought out.
It is located here on this particular model.

A closer look.
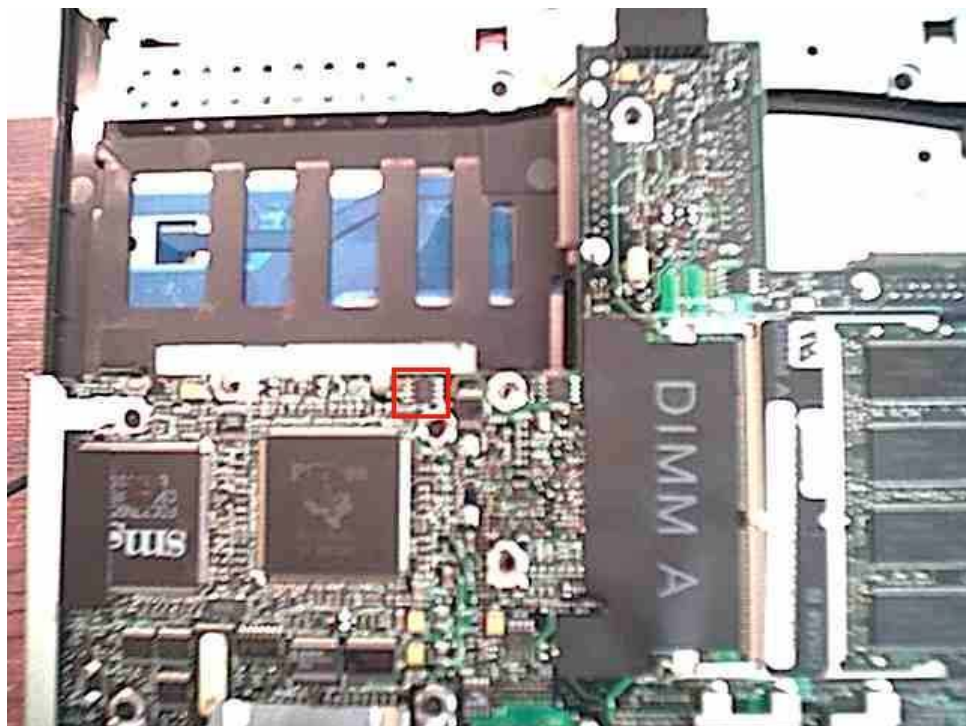
And the best shot I could take showing its location.
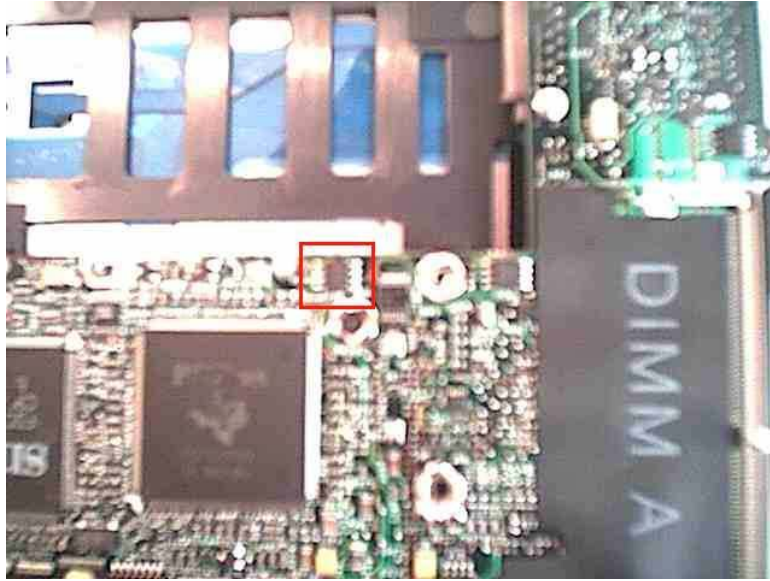
Now that the chip has been located, a closer look must be taken at the actual chip itself. This is both because this procedure will involve working rather closely with certain leads / legs on the chip, and because the correct identification of the chip in question should be verified before anything further is done.

Also if this particular model of laptop is different from that may be being worked on, the chip may be in another location and a good view of what it looks like will aid in being able to find it.

Here are 2 close up views of **24C02** chips.

The arrows indicate which pins / leads will need to be jumped with the paperclip.

This is roughly what the 24C02 chip will look like on your motherboard. The letters or precise arrangement or numbers / letters may be different. But, you will be able to see (possibly with a magnifier) that on the top row, **24** and **C02** are printed, possibly along with other letters or numbers, depending on the manufacturer, or series of the chip.

You can use the direction of the writing and / or the location of the small indented spot shown in the bottom left hand corner of each chip to identify which pins / leads need to be jumped in order to clear the chip.

The paperclip will be used to jump (or make a temporary electrical connection) between these 2 pins of the chip, as shown here:

You should be able to see that these are the same 2 pins which were indicated by red arrows in the previous pictures of the chips.
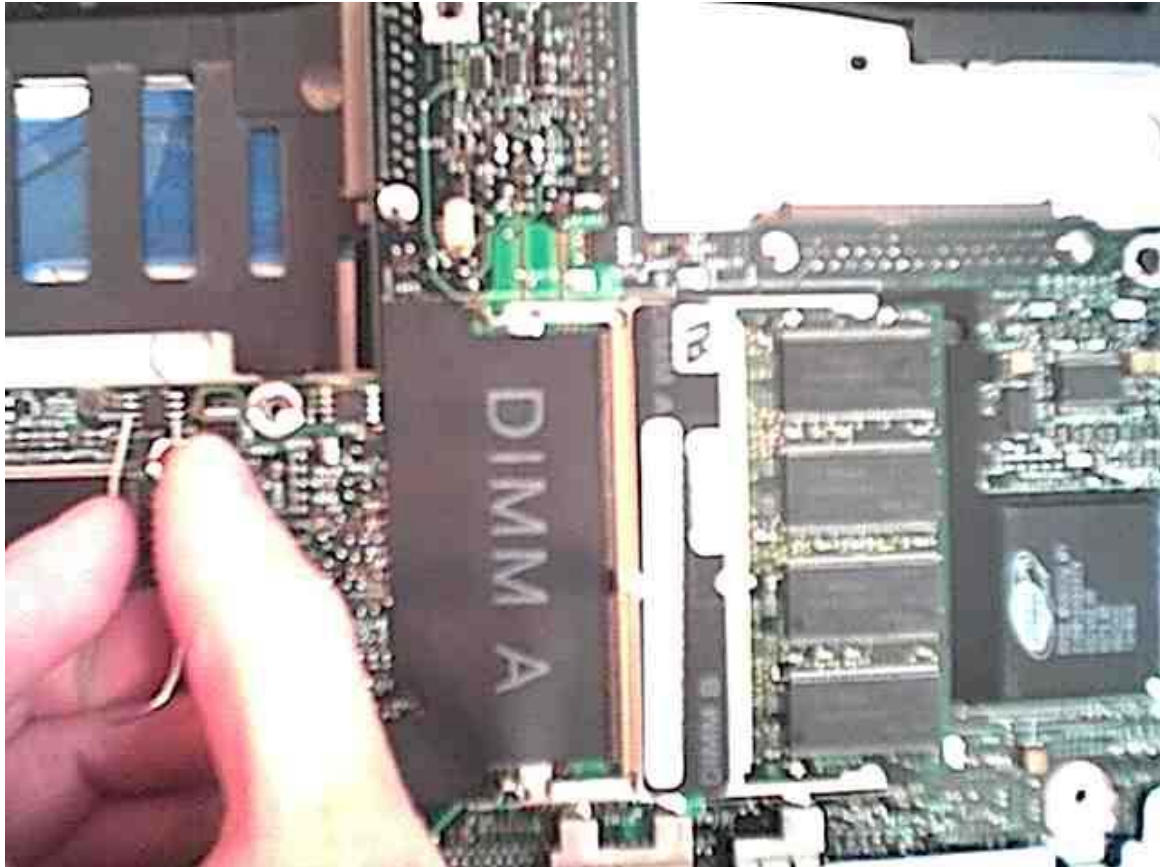
Now the power adapter is plugged in and connected to the laptop, but the laptop is not powered on just yet.

With the laptop open at roughly a 90 degree angle, and lying on it's back, the 2 indicated pins are jumped (or connected by touching one with each end of the paperclip) while the power button located on the other side, near the keyboard, is pressed, turning it on.

The laptop will turn on, and a screen like this should appear. Fn-X may be pressed if desired. Also, setup may be entered by pressing F2. And the paperclip, if it hasn't already been removed, should be.
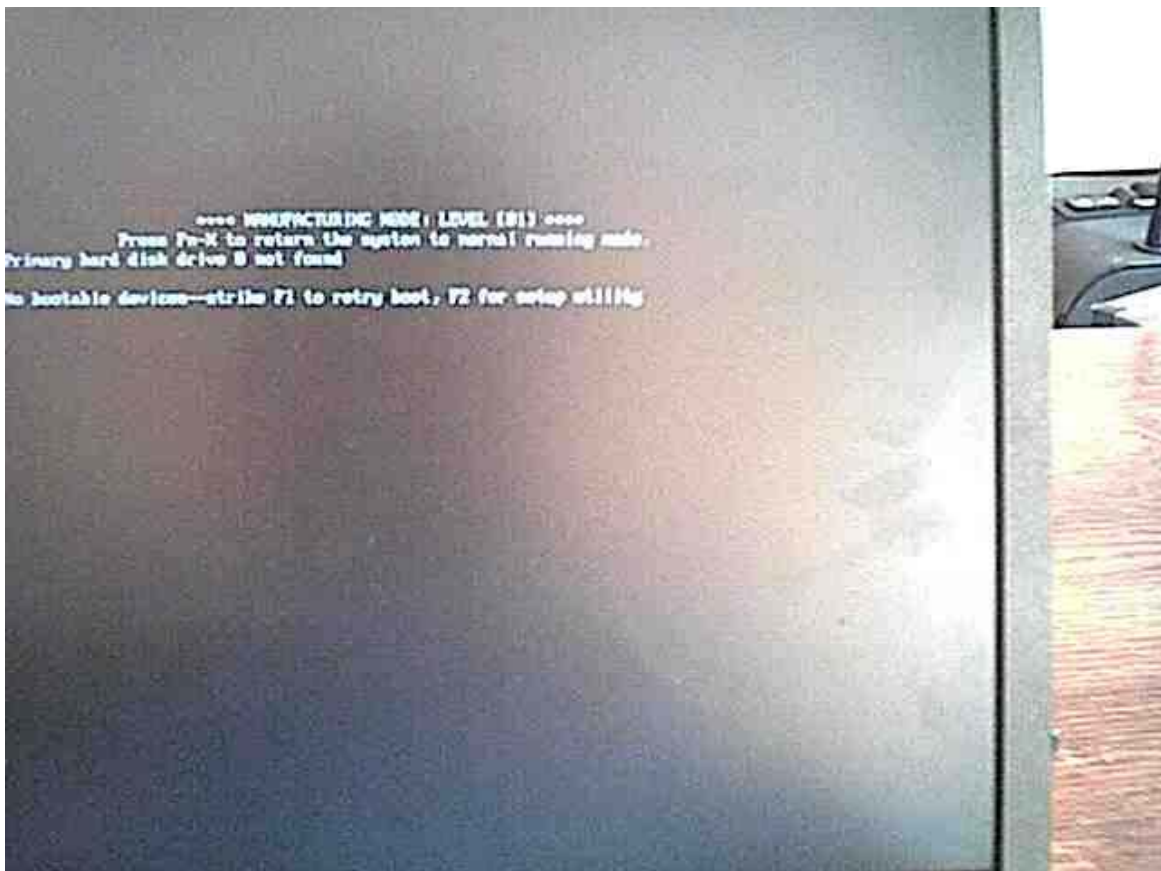
It is now possible to enter setup and change all the values.
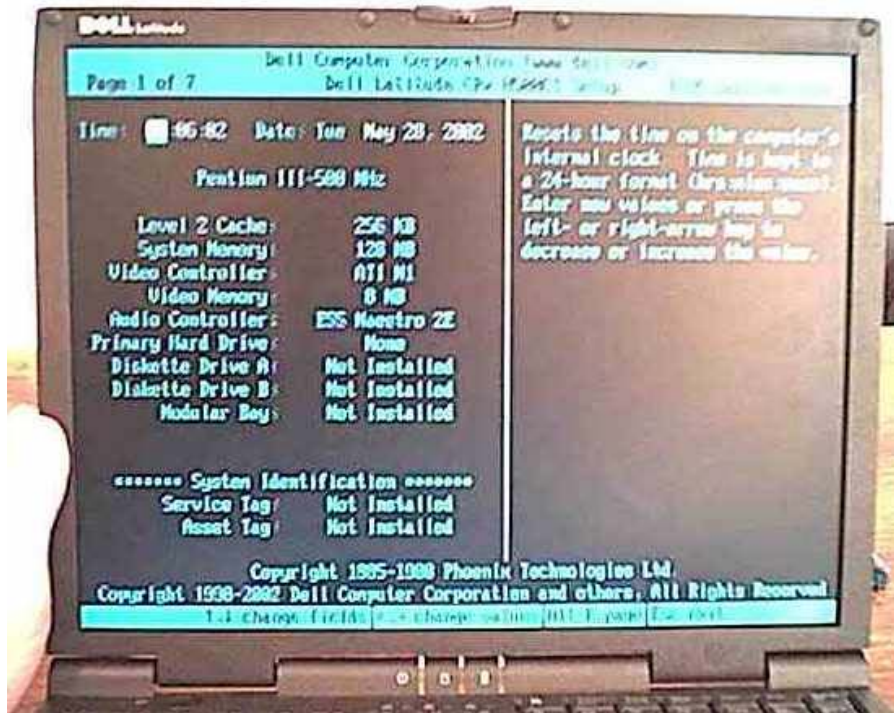
Also note that all system passwords have been cleared.
But you can not use the password feature anymore, because the chip has been cleared of its information. This seems to be another not very well thought through security feature. The next page will show how the chip can be reprogrammed to allow the password feature to be used, if so desired.

* Hard disk drive passwords are not cleared or removed by this procedure.
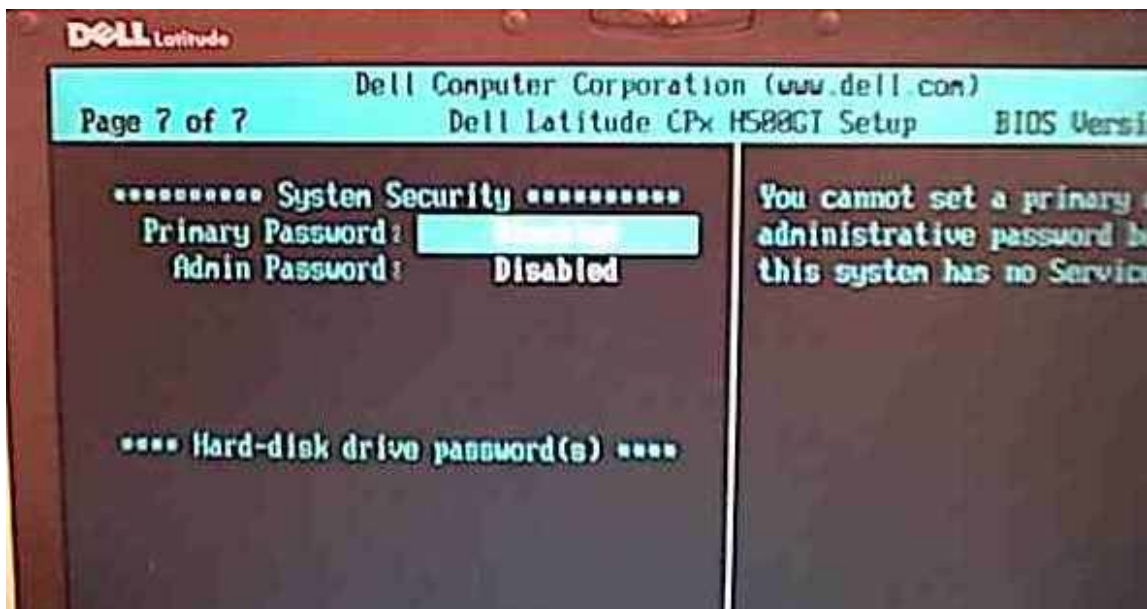
The task having been accomplished, the laptop is now reassembled in the reverse of the disassembly process. Note that not all screws are interchangeable, and care is taken to put the right screw in the right place.

So, now you want your own password.

This page will show how a new password can be set and everything returned to normal.

Now that the laptop has been cleared of the password, the primary and administrative password fields in setup both show disabled.

But, on the right side of this screen, it can be seen that the option to set either of these password has been removed, due to the lack of a Service Tag.
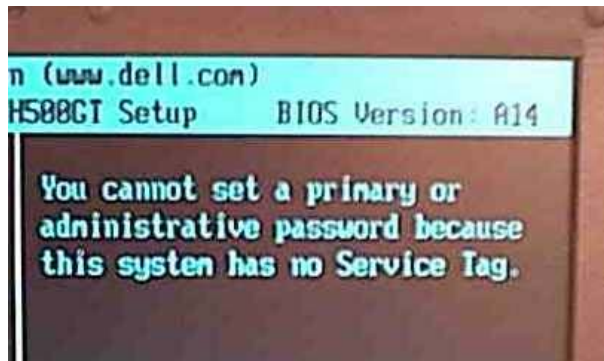
So, now you want to set your own password for the laptop. After having read all of the reasons why setting a password will not prevent theft or access to the laptop or data, and after demonstrating how such a password can be removed, it seems rather ironic. But there may be reasons why you would want to do so.

First, though, it would probably help for me to let you know what a Service Tag is and what it does. And also, tell you about Asset Tags and Owner Tags.

The chip which was just cleared during the procedure had some information on it, as I am sure you know by now. Naturally, it contained the passwords, Primary and / or Administrative.

It also contained 3 other pieces of information, which are referred to as 'Tags.'

* As far as I know, these tags are only used for dell laptops.

The Service Tag is a combination of letters and numbers that uniquely identify a particular computer, somewhat like a serial number. It is used by Dell technical support to be able to identify a particular computer when someone calls them. This tag is a 7 letter field. It would have been the first 7 letters (before the dash '-') which were displayed when the laptop started before the chip was cleared. This tag may be filled with any combination of numbers, letters, and some punctuation marks.
* Once a new service tag is set, I do not think it can be changed without clearing the chip again.

The Asset Tag is for laptops that are owned or distributed by a company for company and / or employee use. It is so named because these laptops are part of the company's assets. This helps the company keep track of, and identify their laptops. This tag can contain up to 10 characters, and companies usually use the same tag for all their laptops or use a sequence of numbers like a serial number for each one.

The Owner Tag is used to display information about the owner of the laptop. This tag can contain up to 48 characters, including, spaces; and, unless it is empty, it is always displayed on the logo screen when the laptop is started up. If you are going to use this tag, I would suggest using your name, or your full name and address.

These tags can be created or changed with a small DOS program called ASSET.COM that has to be run in full DOS mode, I.E.: from a DOS boot diskette. And, it can be downloaded **for free**, along with a whole bunch of other neat files, from the Dell™ FTP site: ftp://ftp.us.dell.com/utility/

If you are not able to directly browse FTP directories, it can be downloaded directly: ftp://ftp.us.dell.com/utility/asset.com

And, finally, if you are unable, or do not know how to make a DOS boot diskette. The file ASSETA00.EXE can be downloaded. It will automatically make a DOS boot disk with the asset utility on it. ftp://ftp.us.dell.com/utility/asseta00.exe

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I should hope that anyone who, despite the numerous cautions and warning, has decided to take it upon themselves to actually perform this procedure would be knowledgeable enough about computers to know how to boot a computer using a boot diskette. However; if you have come to this point, and do not, it is beyond the scope of this demonstration to explain. You will have to find other sources for this information.

By typing 'asset' or 'asset /?' at the DOS prompt, you can get a reference for using asset.com to view, change, or delete the Asset Tag and Owner Tag by using the '/a' and '/o' switches.

Obviously this is all well and good, but does nothing about the Service Tag.

There is an undocumented command switch which you can use with asset.com. It is the '/s' switch, and works exactly like the '/a' and '/o' switches.

Thus, the command:

ASSET /s *XXXXXXX*

Will create the Service Tag represented by the X's.

Remember, this can only be done once without clearing the chip again.

Once the Service Tag is in place, the BIOS setup can be entered, and a primary and / or administrative password can be set.

That pretty much wraps it up. If you are not thoroughly bored by now, you can read the last page. It has some information about the chip that you really don't need to know. (Unless you actually need a new chip for some reason.)

Inspiron 8100 8200 / Latitude C810 C840

Disassembly of the Inspiron 8100/8200 can be accomplished rather easily. The only external component necessary to remove is the keyboard. The screws shown by the blue arrows need to be removed from the bottom of the case. For clarity, they are marked on the case by an encircled 'K', to differentiate them from screws for the palmrest, display, and memory. (Luckily, the original creators of the laptop did not give all these parts names beginning with the same letter.

It's always a good idea to put small screws into some sort of container to keep them from being lost, so they can be used to put it back together. A closeable container works best, especially for projects that can extend more than one day. As you can see, here I've recycled this wood screw container.

Next all the drives are removed. Battery and/or Floppy from the front. The CD or DVD drive must be removed because the chip is underneath of it.

The CD or DVD drive is removed by pulling on this handle (which may be held in by a screw.)

The hard drive cover is locked in place by a double locking mechanism. First a screw is removed from the hard drive cover.
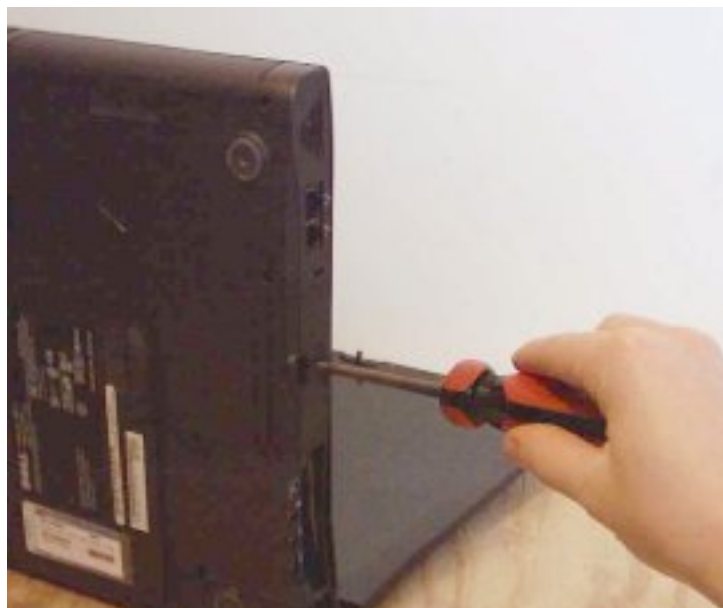
Second, the cover is slid towards the bottom slightly, both unlocking it and creating a handle, by which it can be pulled out of the laptop.

Removing the hard drive will prevent any erroneous information that may develop while working with the chip from causing a password to appear on the hard drive, or from changing an already known hard drive password.

Next the keyboard is lifted up from the corner, pulled up and off, and laid to the side. It is not necessary to remove the keyboard completely.

(However if working conditions require it, it is possible to remove the entire keyboard by disconnecting 2 ribbon cables that plug into the main circuit board.)

The power button/LED display panel is then removed by **gently** popping it up on both sides, and lifting it off.

From here the chip may be accessed in somewhat cramped conditions if further disassembly is not considered prudent. (Further disassembly shown farther down the page.)
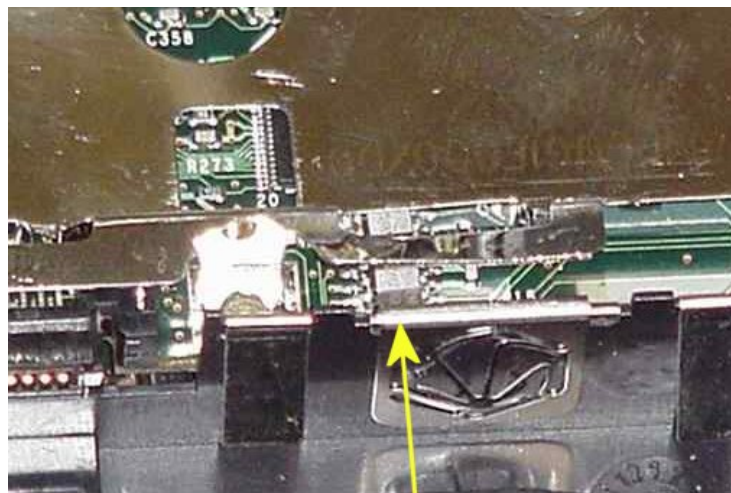
(The preceding 2 photos not taken by me)

A few helpful people have sent in these pictures to assist in finding the chip on this model. Once the keyboard and CD-Rom unit are removed, the chip can be seen located just under the lip of a piece of metal which is part of the cage that the CD-Rom slips into.

Further Disassembly:

In order to remove the DC-Rom cage, a few more screws are removed; and kept track of.

The blue arrows indicate screws that must be removed. The red arrows indicate the location of latches holding the cage onto the motherboard which are carefully pried slightly sideways to free them. (As shown below.)

The cage can then be lifted up like this...

and then finally pulled out, revealing the chip

The following 2 pictures show the location of the chip.

As show here, the chip can easily be accessed and jumped. This arrangement also offers the best chances for removal and replacement.
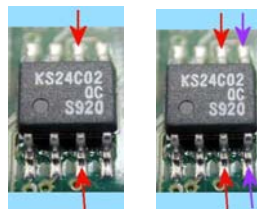
(Actual chip may look different. This picture simply shows the proper orientation.) In order to turn the laptop on while jumping the chip with a paper clip; the power circuit board must be replaced, and the cover as well. If red don´t work, try purple pins.
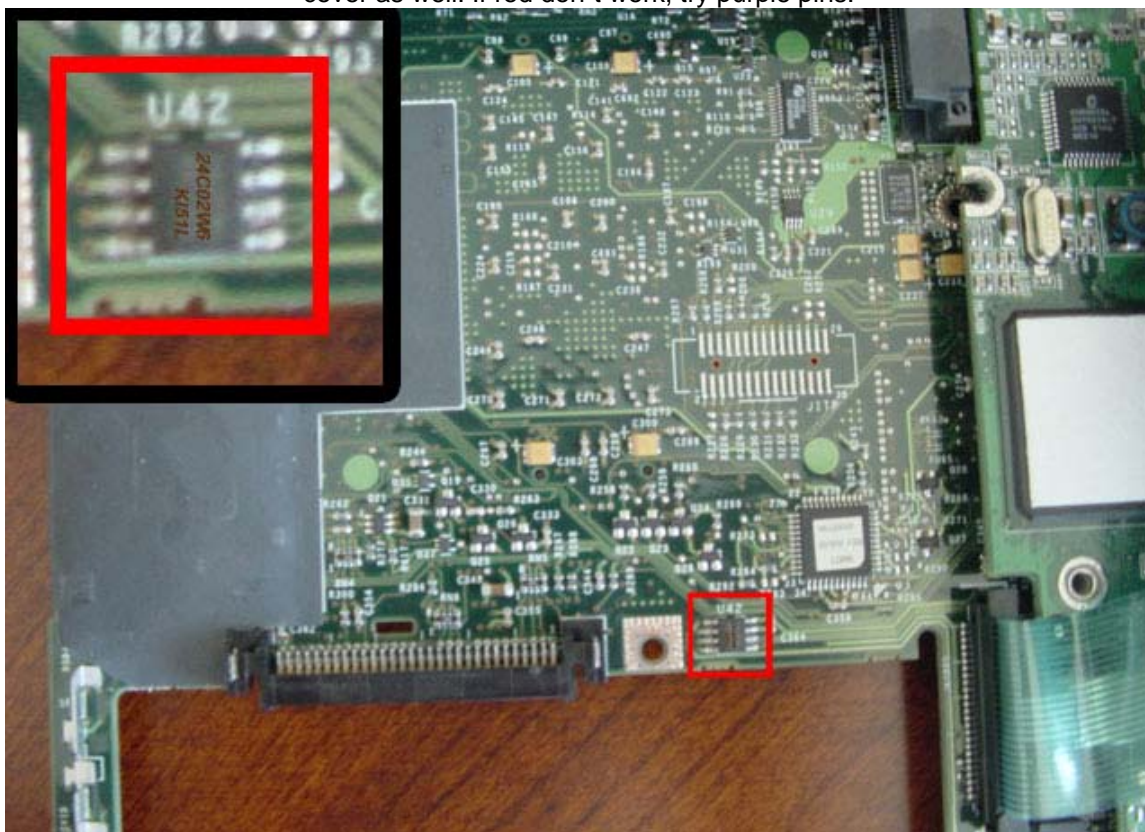
Latitude C400
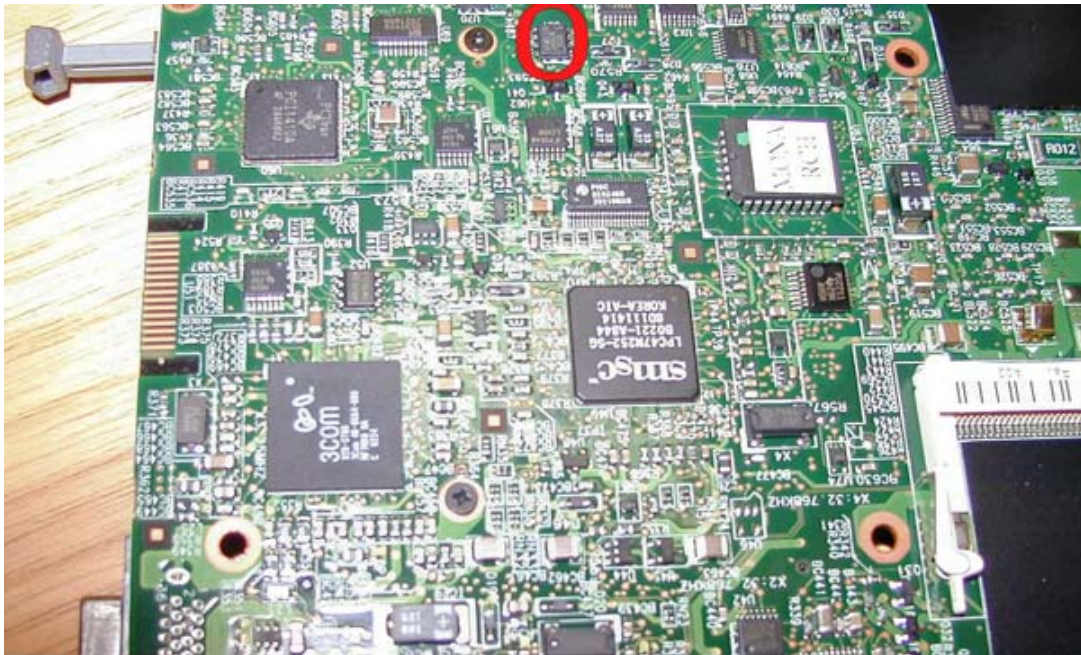
Short circuit the the marked pins red or purple on 24c02 during booting. If this don´t work, short direct after you pushed power. If this don´t work at first time, try it again and again.
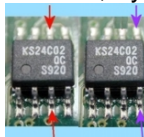
Latitude C600 / Inspiron 4000

The Chip is on the bottom side of motherboard, under the PCMCIA card slots.
Short circuit the 24C02 chip during booting.
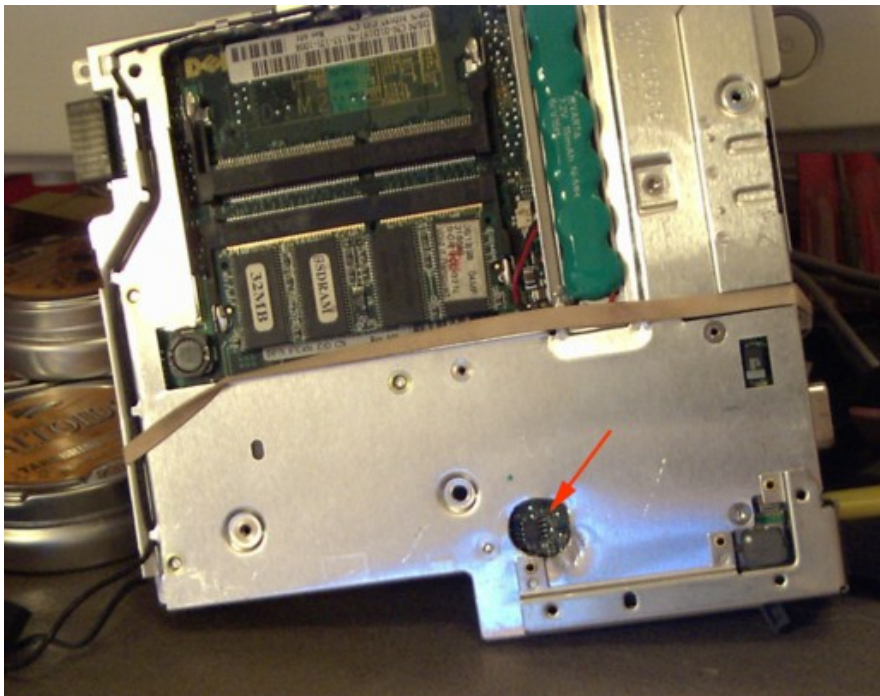
Latitude C610 / Inspiron 4100

The chip is located on the underside of the laptop. (the bottom) It can be accessed by removing the RAM memory cover, and is located just under the lip of the plastic case.
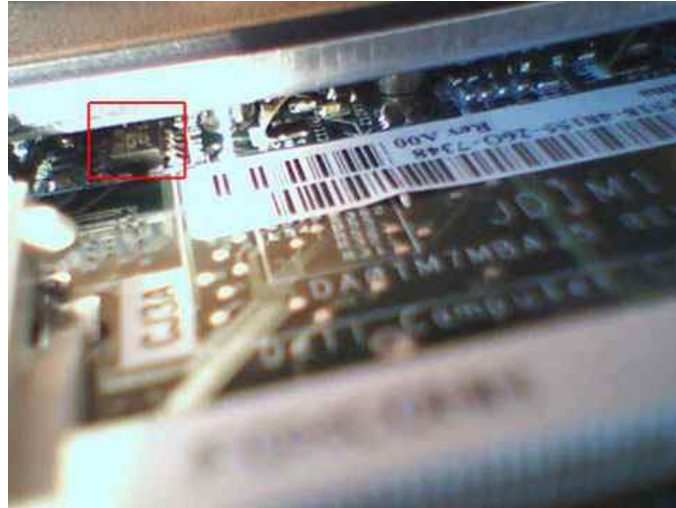
This chip should be able to be cleared by reaching a bent paperclip at an angle under the edge of the plastic lip of the case in such a way as to connect the 2 proper pins.
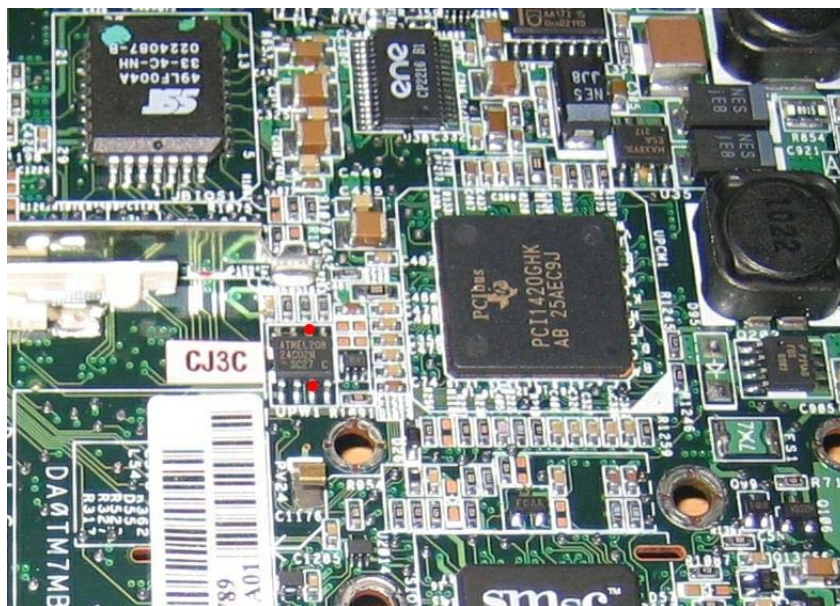
Short circuit the the marked pins on 24c02 during booting. If this don´t work, short direct after you pushed power. If this don´t work at first time, try it again and again.

Latitude C640 /C540 Inspiron 4150

The Chip 24c02 24c04 or 24c05 is on the bottom of the motherboard just to the left of DIMM 1.
Short the marked pins direktly after you pushed the power button.
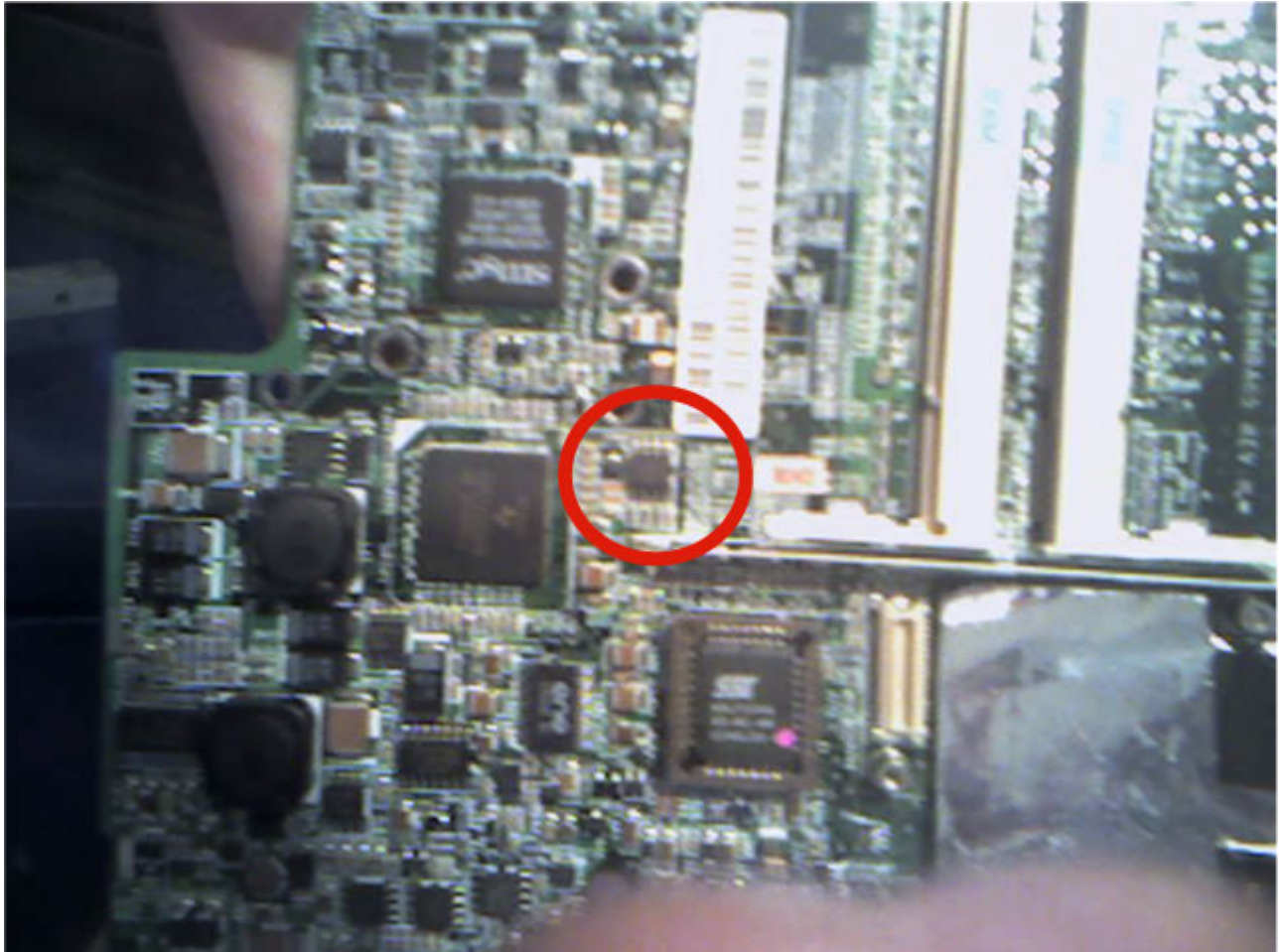
Inspiron 8500 / 8600 / Latitude D800 Precision M60
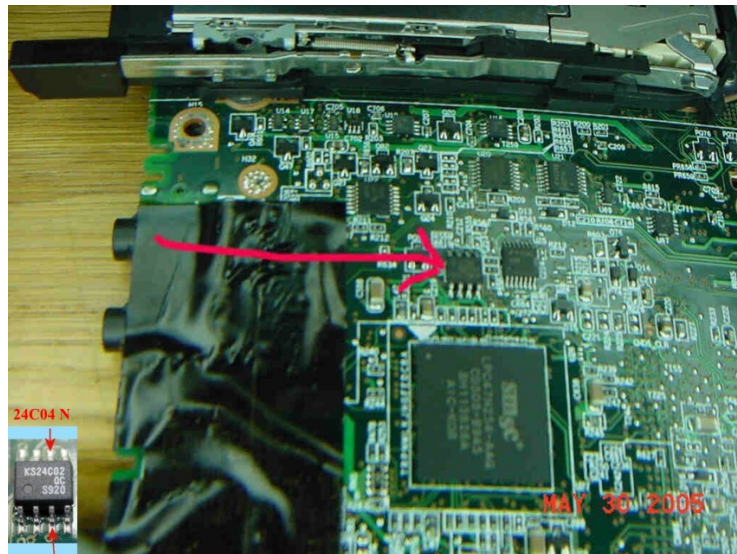
The chip (24u04) is located on top of the motherboard under the hard-drive caddy approx 50mm in from the headphone socket on the left side of the laptop.

Short circuit the chip during booting and start again without paper clip. Now you get the Fn-X screen.
Or
Short circuit the 24u04 chip during booting and release when the cursor at the display flashes.

Latitude D400
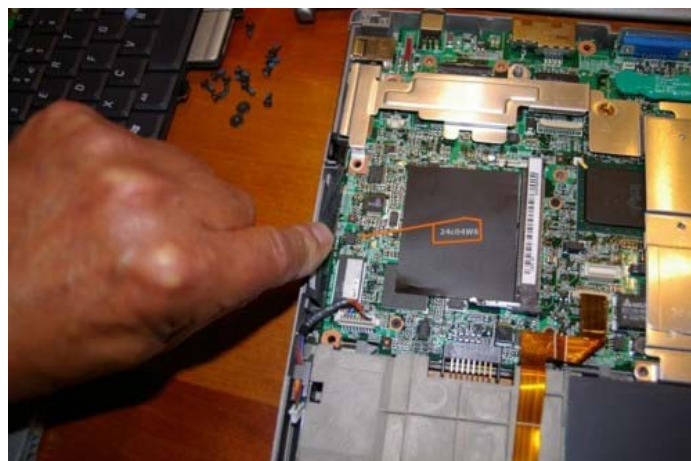
Short circuit the 24c04 or 24c05 during booting

Latitude D410
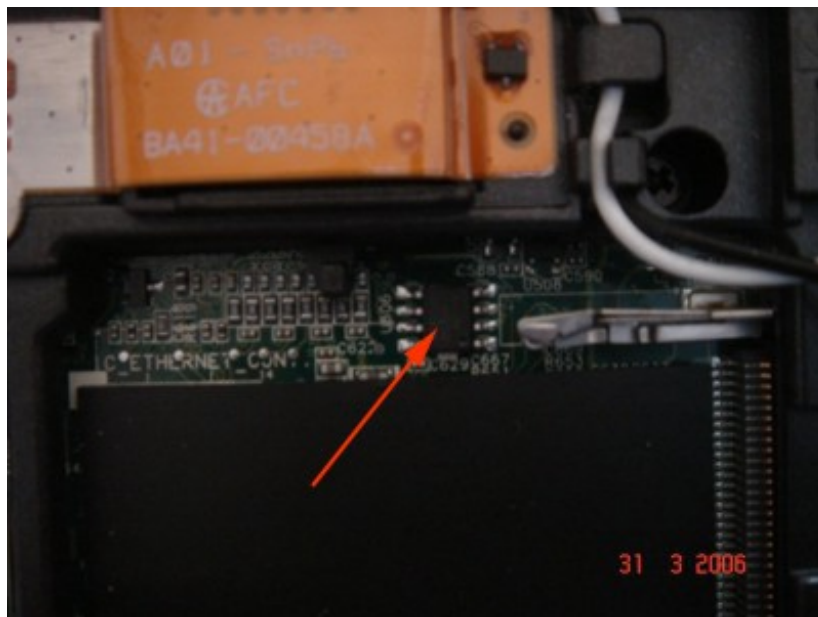
Chip is next to WLAN modul.
Short pin 3 and 6, when the machine give's first sight of dell logo

Latitude D500 / D505

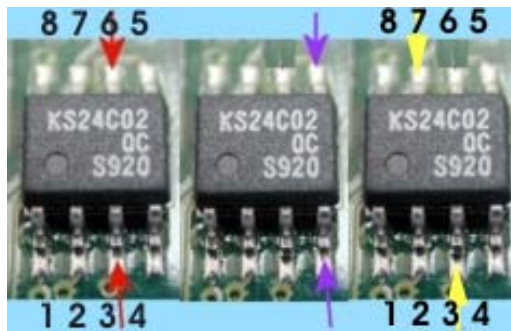# Latitude D510

Short circuit the 24c04 or 24c05 during booting and release when the cursor at the display flashes. If this don´t work, short direct after you pushed power and release when the cursor at the display flashes.
If this don´t work at first time, try it again and again.

Latitude D600 / Inspiron 600m

Take out the hdd. Short circuit the 24c04 or 24c05 during booting and release when the cursor at the display flashes. If this don´t work, <u>short direct after you pushed power</u> and release when the cursor at the display flashes.
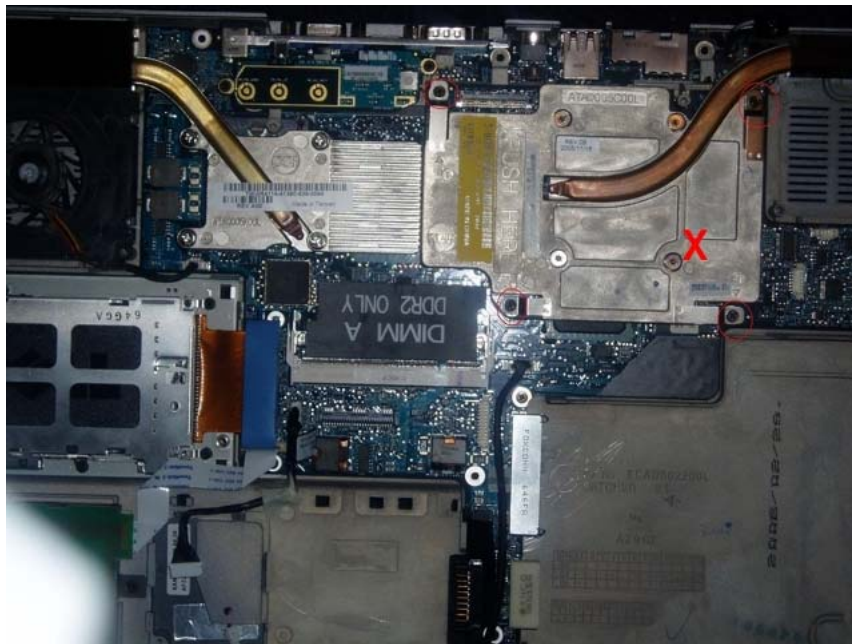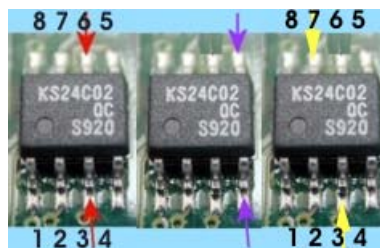If this don´t work at first time, try it again and again.

Latitude D610

Chip 24c04 or 24c05 is beside modem compartment at the backside.
Short pin 3 and 7 wile booting. Sorry for the bad Photo.
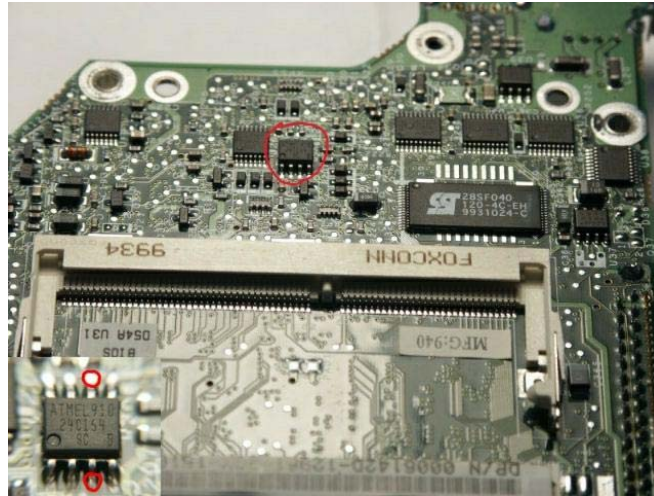If you have an other Chip, try to short the other positions.

Latitude D810
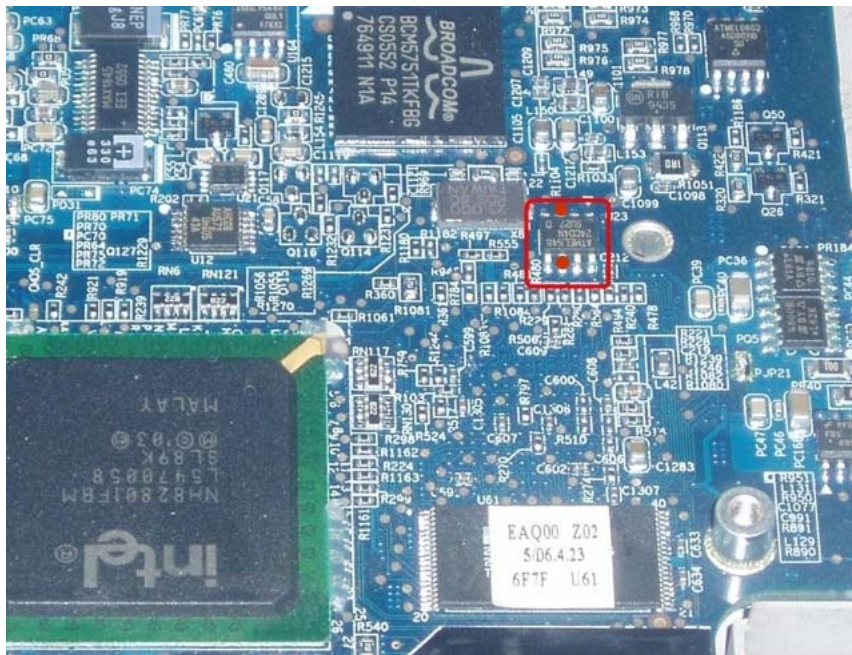
Take out the hdd. Short circuit the 24c04 during booting.

Inspiron 3500

Short circuit the 24c164 chip during booting. If this doesn't work, desolder the backup battery and waited 30 min and it erased the chip password.

Inspiron 1100/5100

24c168 or 24c164 Chip is on the bottom of the board near the B ram connector. Short circuit the red marked legs during booting.


When Password is cleared, and it´s back again after starting again,
Try it again and again. If this don´t work, bridge must be left on the Chip.
Some I tested work without bridge, and some need it.
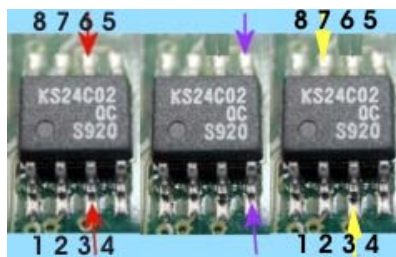

Inspiron 510m

location of the 24c04 eeprom is under a piece of black sheet under the pcmcia socket
next to the actual bios flash chip. Press power on then quickly short pins 3 and 6.
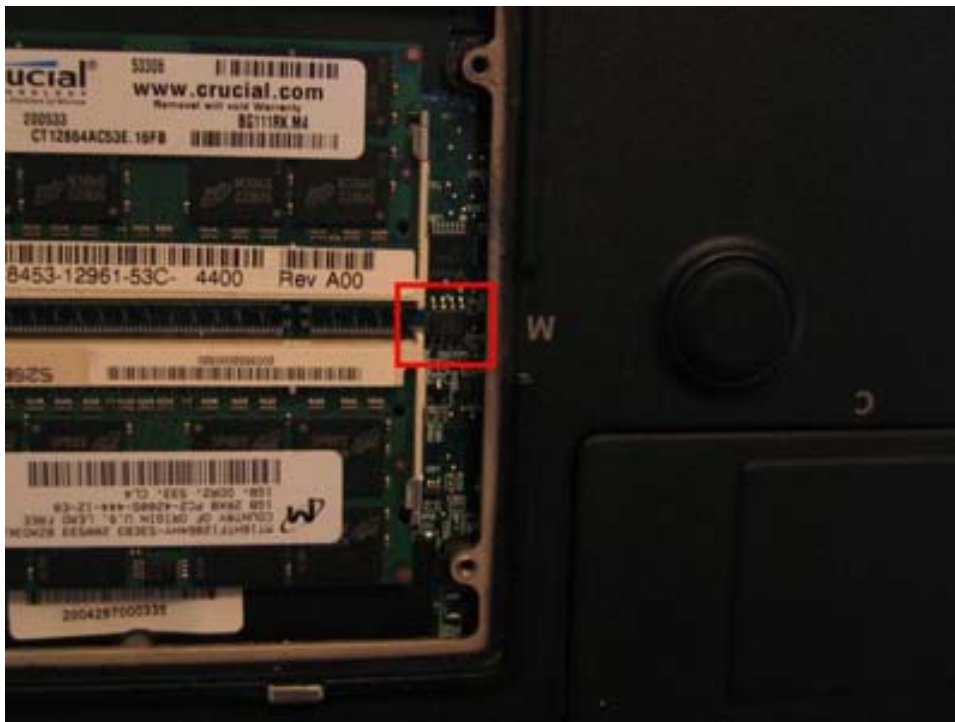
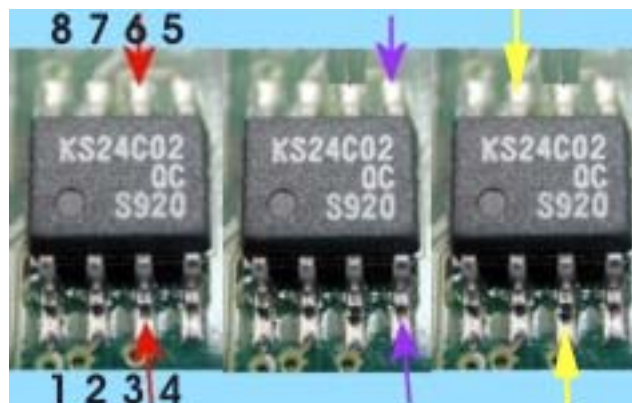# Inspiron 1200/2200/ Latitude 110L
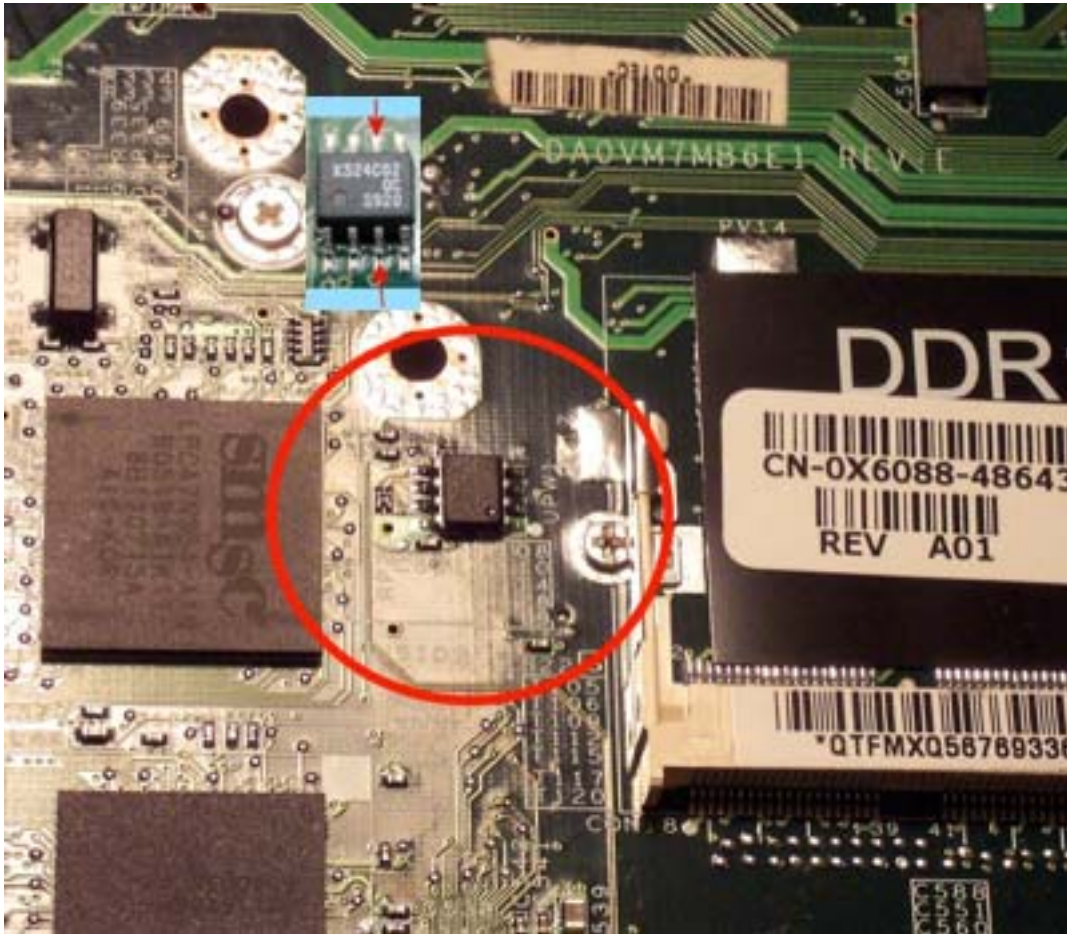
Short the 24C04 while booting.
If the red jumper don´t work because it´s a different chip, try the other short positions.
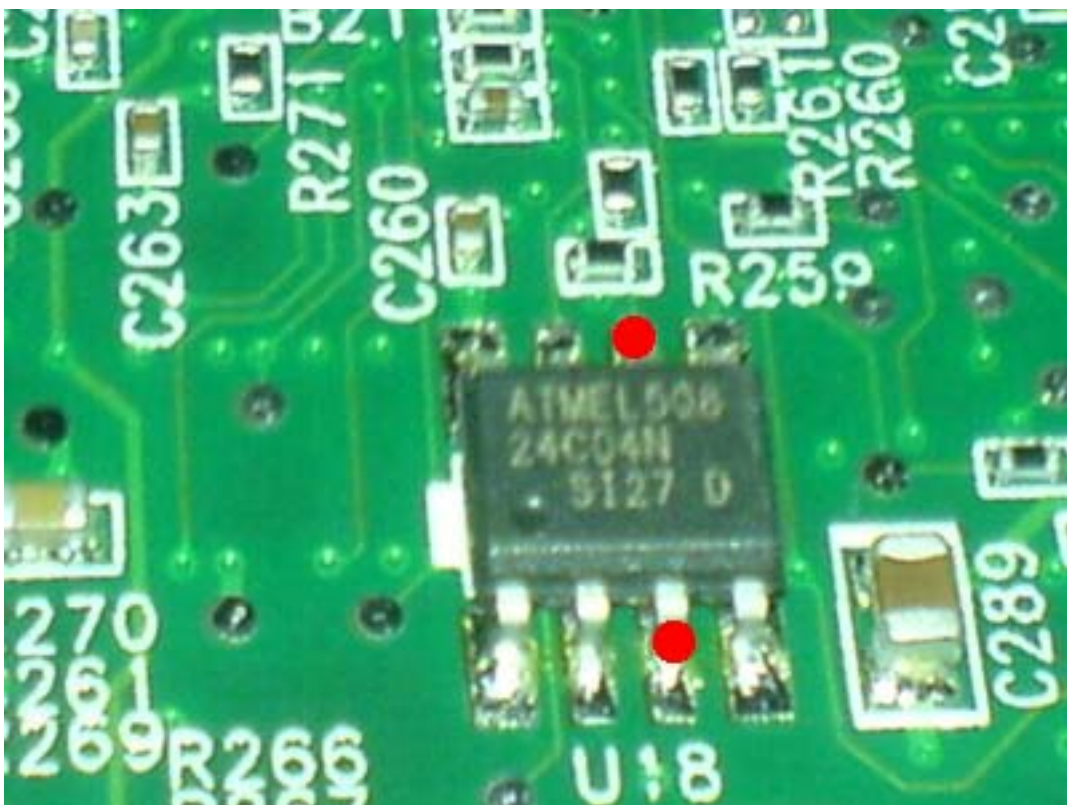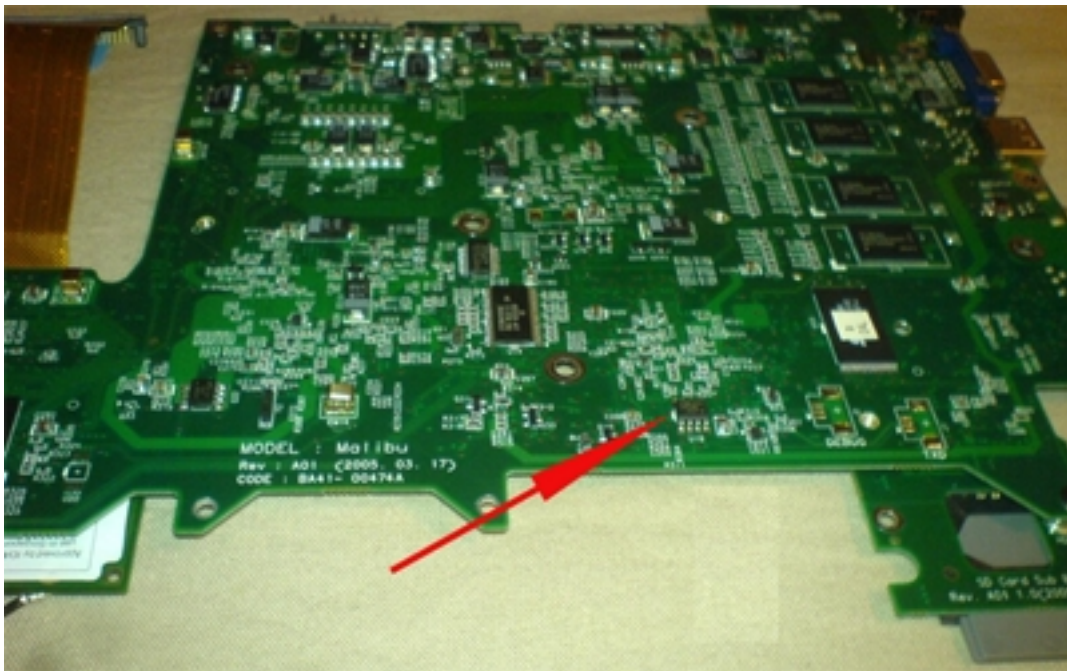
Inspiron XPS Gen2 / M170 / 9300

The chip (C24O4N) is located on the bottom of the laptop right next to the two DIMM slots. short the pins (3 and 7) IMMEDIATELY AFTER hitting the power button.
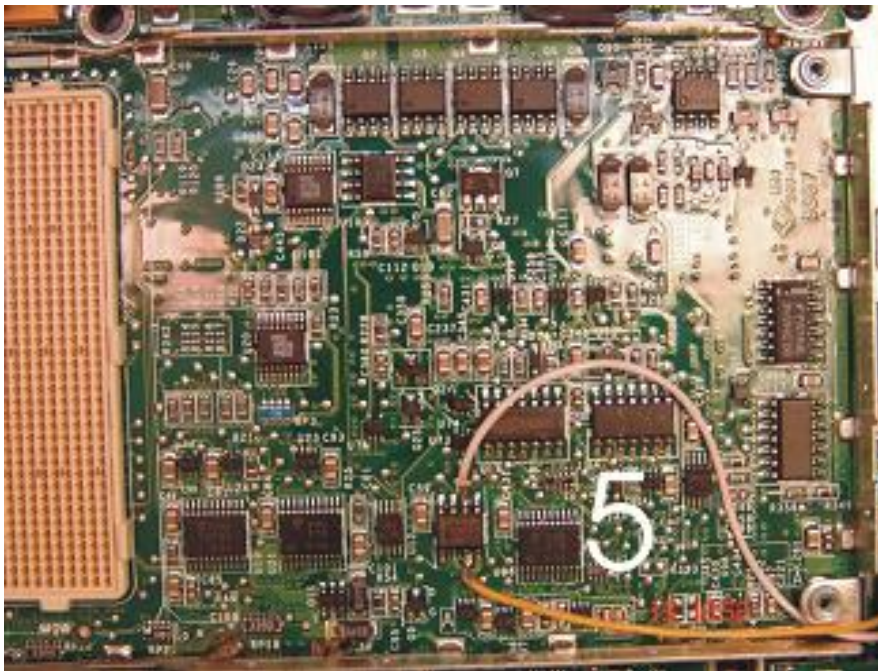
Latitude X1

Short the 24C04N while booting.

Latitude CPIA

The chip on this model is located under the processor itself.

The only method I have been told of, (as I have not had a chance to work on one of these models myself) is by soldering or otherwise attaching 2 small wires (insulated or covered wires) to the leads / legs of the chip. Then running them out of the laptop where they can be connected after the laptop is turned on. And replacing the processor very carefully.

It is very important to make certain that the heat sink is properly attached to the processor before attempting to turn on the laptop. Also, processors are very sensitive to damage and static charges which can damage them. One must always be very careful when working with processors.

Latitude CPIx
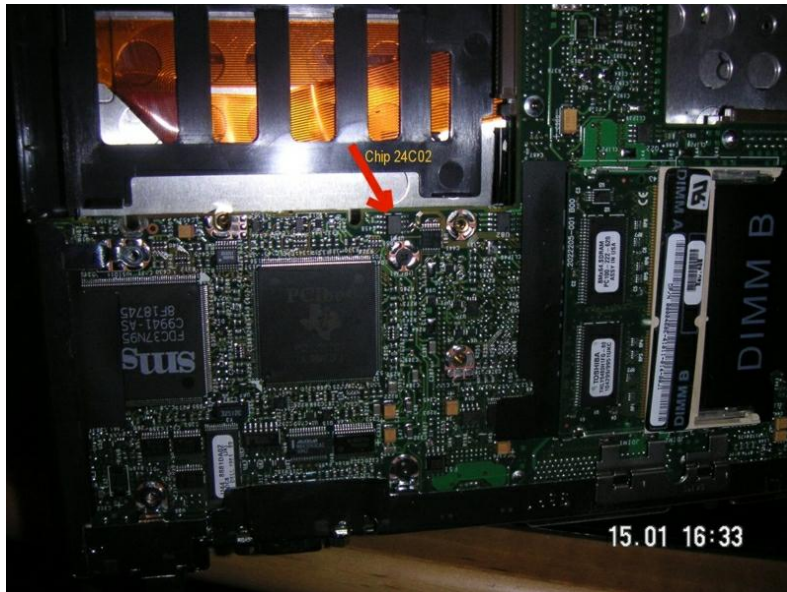
Latitude CPX

Latitude L400

As you can see from the above picture, the Latitude L400 comes in a thin leather case. It is quite stylish, save for the fact that the Dell logo is emblazoned on the front and on the zipper pull tabs.

The L400 Also comes standard with a 20 GB Hard drive and 256 MB of RAM. And this one came with Windows 2000 Professional, as I found out once I removed the password.

But, enough about the way it could work, let's get on to how to get it working again if you are locked out of it by a password.

Taking the laptop out of the case reveals a slim machine with no floppy, no CD-ROM, and a single PCMCIA and USB port on the side. This laptop requires a docking station if you need access to normal Media.

That's the 4 parts of my Targus Universal Adapter on the table above the laptop.
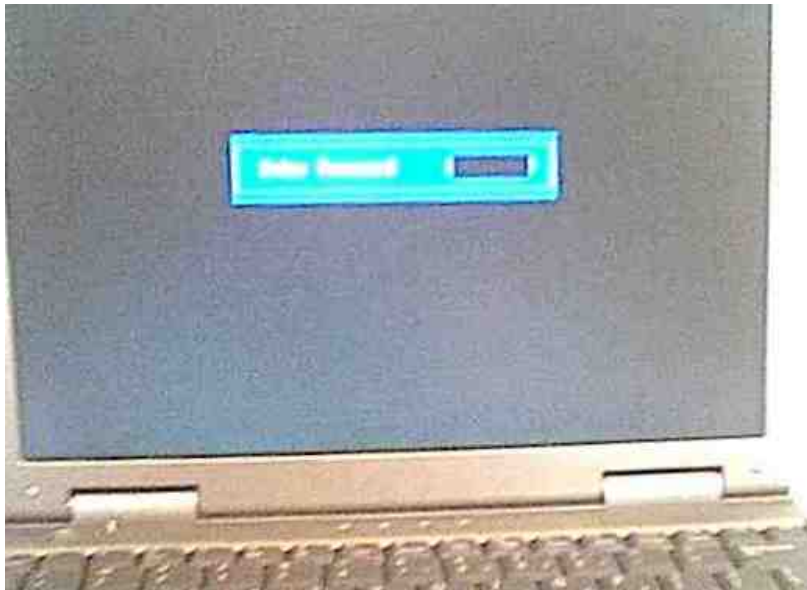
A password screen locks us out of the laptop. But not to be defeated, we just get out our tools.

This laptop is rather easy, and only requires the removal of 4 screws, and doesn't even need a paperclip. This one can be cleared by removing power to the CMOS or BIOS chip.

This laptop does have a 24C02 chip on the back of the motherboard. (I took it all the way apart; in order to get to the chip, almost every single screw in the whole unit has to be removed.) Although the 24C02 chip is there, I don't know what, if anything, it is used for.

The first thing that needs to be removed is the battery. This will ensure that no power from the laptop battery gets to the CMOS and holds the passwords in there. The latch is pulled to the side, and the battery is flipped up and out.

This slide plate just above the keyboard needs to be pushed towards the left. It may help to lift up on the right side <u>slightly</u> while pushing it to the left. It slides about ½ of an inch to the left and then can be pulled off.
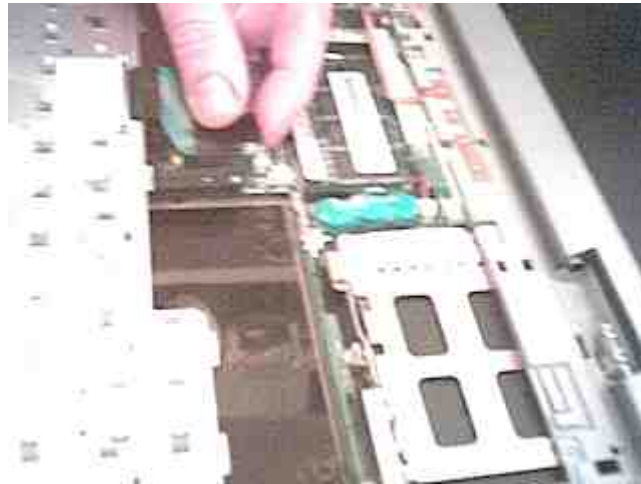

Now, removing the slide plate reveals the 4 screws that hold the keyboard in place.
(The red arrows indicate which screws are the ones that need to be taken out.)

The Keyboard needs to be lifted from the front, and pulled towards the screen slightly.

It can then be flipped over as shown.

Now the single keyboard connector is removed and the keyboard is pulled off the unit.
This connector is one of the ones that can be taken off and replaced easily.

Here you can see the actual BIOS chip itself (yellow arrow), and the CMOS battery (blue arrow) that
we need to remove.

The CMOS Battery powers the CMOS/BIOS chip, giving it power to hold the settings and passwords
and such while the laptop has no power.

The CMOS battery is held onto the motherboard by a sticky glue.
A flat tipped screwdriver or other prying device is used to **gently** pry it upwards until it is loose.

Finally the CMOS battery plug is pulled loose from its connector socket on the motherboard.

The pernicious CMOS battery is held victoriously.
This is it. The final, last part of clearing this laptop.

After waiting about five minutes, it can be replaced and everything put back in place. The password is now cleared.

When the laptop is put back together, it is important to slide this corner of the keyboard in just right.


This procedure will clear the supervisor password, the user password, the boot password, and will reset the hard drive password from 'locked' to 'set'; but it will not clear the hard drive password. I do not know if it is possible to clear the hard drive password, perhaps that is what the 24C02 chip on this laptop is for.

I did say that I had taken this laptop completely apart.
For anyone who is curious, or feels the need to do something with this laptop other than clearing the passwords; these 2 last pictures show the approximate location of the chip. It is on the bottom of the motherboard.

And yes, it can be hooked up without the bottom of the casing and powered on as in the main site procedure.

Extraneous

Some unnecessary information about the chip.
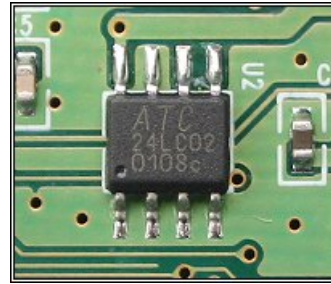
This page is dedicated to somewhat trivial information about the 24C02 non-volatile RAM chip that is used to store the passwords and tags which was the focus of this site.

It will also serve to provide more information about why this particular chip was used, debunk the claims of money-grubbing Hoodwinkers selling replacement chips for around ten times what they pay for them, and offer options to the souls who have de-soldered or damaged their chips and not yet bought one of these replacements, or received one which was damaged in transit (according to the shipper.)

The <B24C02< b>microchip is a small microchip that can store up to 2048 Bits, or 256 Bytes of data. This data can be read and written by a computer (or by another part of an electronic circuit.) In actual practice is mostly read from, instead of written to. It uses a serial communication protocol bus called I^2C, which if you haven't heard of it, is a fairly common way for components inside the computer's circuitry to exchange information. You can read all about it, if you want to:
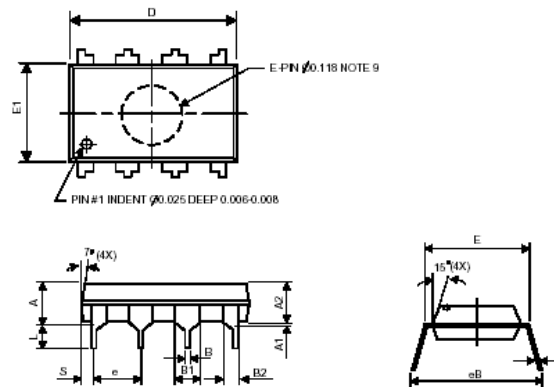
The chip has 8 leads, can comes in a variety of shapes and sizes. It is part of a larger family of serial storage chips which includes the **24LC02, 24C04, 24C06,** and **24C16**. (The last 2 numbers in the name refer to the number of Kilo-Bits that the chip can store.)
The one which was used in the demonstration was a ceramic encased surface mount DIP chip which is based on the design shown on the left.
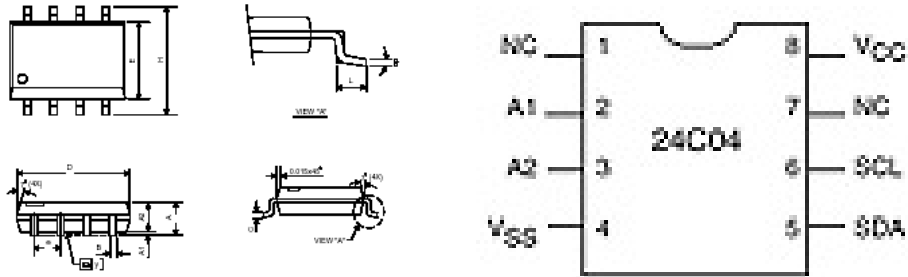

I have seen and heard about people who offer to sell new blank 24C02 chips to people, so they can unsolder their old one, and then re-solder the new one in. This will work, if all goes well and the new chip has not been damaged. These people, and their websites, attempt to convince anyone needing to clear a password on particular laptop models that they have only one recourse. That they **must** purchase one of these chips, and either attempt to solder it in, or pay for a costly chip soldering / replacement service.

These people charge exorbitant prices. Someone I know personally paid $50 for one of these chips. But I have found that they are available from reputable electronics firms for much lower prices. I have seen them being sold (The same chips) for between $2.50 and $15.00 apiece, usually around $5.00. There was even one firm that was selling them (wholesale) for 75¢ (If you buy them by the thousand.) At an average cost to them of about $5.00 for the chip, 37¢ for a stamp, and a few cents for an envelope (usually they send it to you in a normal postal envelope) that's about 6 bucks. So, how much profit are these people actually making? You do the math.

Another factor here is where the person ordering the chip has to solder it in themselves. Soldering is not that difficult in general, and plenty of people can solder normal electronic components. But, this is a little different. This is a surface mount component. Surface mount components were designed to be soldered on to a circuit board by a machine using a special process, not by hand. This chip requires solder contacts of less than a millimeter, with less than a millimeter between each; and 4 on each side. It has to be lined up pretty precisely; surface mount components are held to the surface of the board by solder welds instead of having legs that stick through holes in the board. It requires excellent eyesight, and a very steady hand.

And, the primary risk factor in hand soldering surface mount components is Heat. When surface mount component boards are manufactured, a machine applies the exact amount of solder to each leg, and solders all the legs at the precisely the same time, by heating the contacts at exactly the right temperature for exactly the right amount of time needed to complete the soldering.
This is very different from hand soldering, where one leg is soldered at a time, with a soldering iron who's temperature is know to be precisely: ***pretty damn hot!***; until the solder weld *looks* like it's good. With the short distances between where the leg (which is made of metal and conducts heat) is soldered and where it runs into the silicon chip, the chip could easily be damaged. Even I, who consider myself to be rather good at soldering, wouldn't consider even trying something like this without some special equipment.

So, the service these people are offering (other than keeping their supplier a secret) is to let you pay them a nice heap of money, so that you can wait for the chip to come in the mail. Then you can try unsoldering the chip and replacing it by hand, possibly ending up with something that looks like the microchip in this picture or worse:
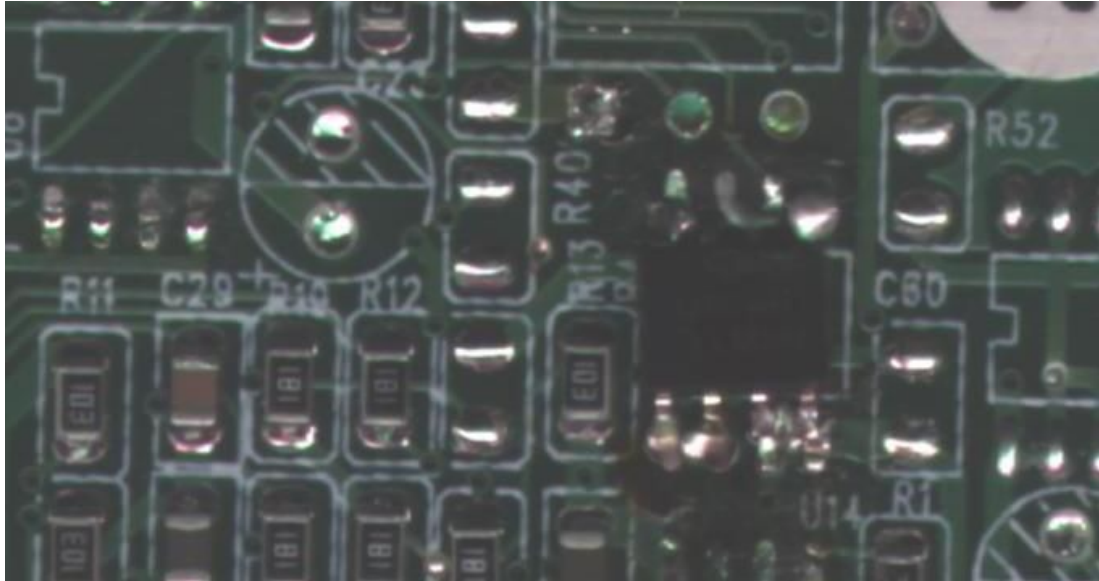
and then hoping that it works.

Now, if someone really does need a chip, (If this pertains to you, I'll bet you wish you hadn't been so hasty) one can obviously be ordered from a reputable business. But, this may not be necessary!

The 24C02 and related / compatible chips are all around you. If you work with computers, then they are right under your nose. If you have a DIMM memory module available, look at what it says on the small chip in the upper right hand corner. 24C02, 24LC02, 24LWC02; something like that?

That's right! There are 24C02's everywhere. What? You had been thinking that they had to be ordered from a special website, because they were specially made just for your laptop? Heck, no. They are everywhere, most easily found on DIMM's. On a DIMM they store the information about the manufacturer, size, speed, type, error checking capability, and even how the rows and columns of memory are ordered and addressed.
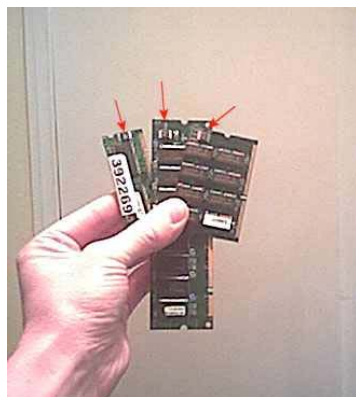
But they are not just on DIMM's. Remember, these chips store information which can be read by whatever they are in. Also, they are a rather common, chip that is well known and familiar to electronic engineers. It is also easy to use, and has many flexible applications. **And it's cheap!** (as far as chips go) It's not surprising that they would be modems, LAN cards, etc... (and laptops)

I saw one on a DVD decoder card, (hmm...) and I heard about a similar chip (24C16) being in a satellite receiver box. (I wonder what they could be doing in such devices.) (Not to mention that many smart cards [like the ones that go in satellite boxes] have a 24c02 or similar chip embedded inside of them)
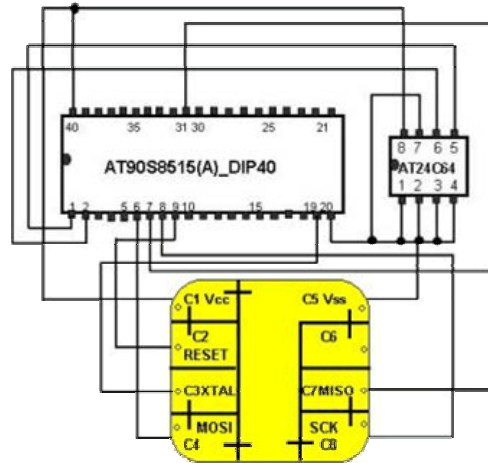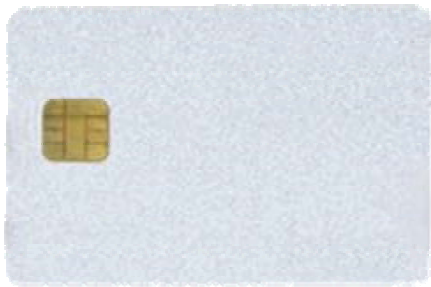
I don't know for sure, but I'm guessing that; the modem uses the chip for manufacturer, speed, and Plug and Play information; and the LAN card for PnP and / or NIC number. We already know what the laptop uses it for. I won't, and probably don't have to, speculate about what it's used for in either the DVD decoder or Satellite box.

Well, there you have it: The demonstration and some info on the chip, and stuff. If anyone has to have a new chip, one can probably be scraped off of a bad DIMM stick. (It's best to expose such components to as little heat as possible. Also, it is possible to hand solder these chips if necessary, or if you just feel like it. But it is difficult. Check out what one guy did to the chip on one of his DIMM's: LM75 Temperature sensor in DIMM

Naturally, this guy knew what he was doing; but it just goes to show that there are a lot of possibilities out there. So don't think any challenge or knowledge is beyond your reach, because there's always helping hands out there - somewhere.

The information in the chip can be read / written with a special device called an EEPROM reader or programmer; or a PICprog (Programable Integrated Circuit programmer.)

Devices like these can be purchased for around $100 or less, and [with a some time and quite a bit of reading for those new to electronics or programming] used to read, write, or manipulate the information in EEPROM chips. It is also possible to build your own circuit with a little know how, the right chips, and a few hobby electronics supplies. There are a number of places on the internet where these products or materials can be found; as well as instructions on how to build or use them.

I have heard that chips in Dell laptops contain the password, and 2 tags in standard IBM type Scancode format (there are different standard scancode formats.) I have not verified this yet, but hope to get a PIC reader and check this sort of thing out sometime soon.

Scancode is a code (binary byte or word) sent by the keyboard to the computer. The computer then uses this code to interpert what the user is doing on they keyboard. A certian code is sent each time a key is pressed and another when it is released. This is how key combinations such as **Ctrl + Alt + Del** can be pressed at the same time without conflicting with each other's signals.

Disclaimer

This information is provided as an "At Your Own Risk" procedure. I can not absolutely assure that it is safe for any or all equipment, with any make of materials, or under any or all environmental or working conditions. If you perform this procedure on a product belonging to you or another person, you do so at your own risk and liability. Also you are responsible for taking any safety precautions that may be necessary to protect yourself and the equipment you may be working on, or which may subsequently be affected by this procedure. You are also responsible for any breach of law or contract which would occur by your decision to undertake this procedure.

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Also; I can not be held liable for any ill effects brought about from natural responses of humor resulting from reading of this site, or its content, regardless of the form of humorous reaction. This shall include but not be limited to: laughing, chuckling, giggling, or snorteling.

If specified procedure don´t work,

Try to short the marked pins, red, yellow or purple directly after you pushed the power button.
Try to short the marked pins, red, yellow or purple and push the power button.
Try to short the marked pins and push the power button, when cursor flashes release.
Try to short to different times of booting and release to different times.

Take out the hdd and use a ac adapter!